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AND AROMATICS

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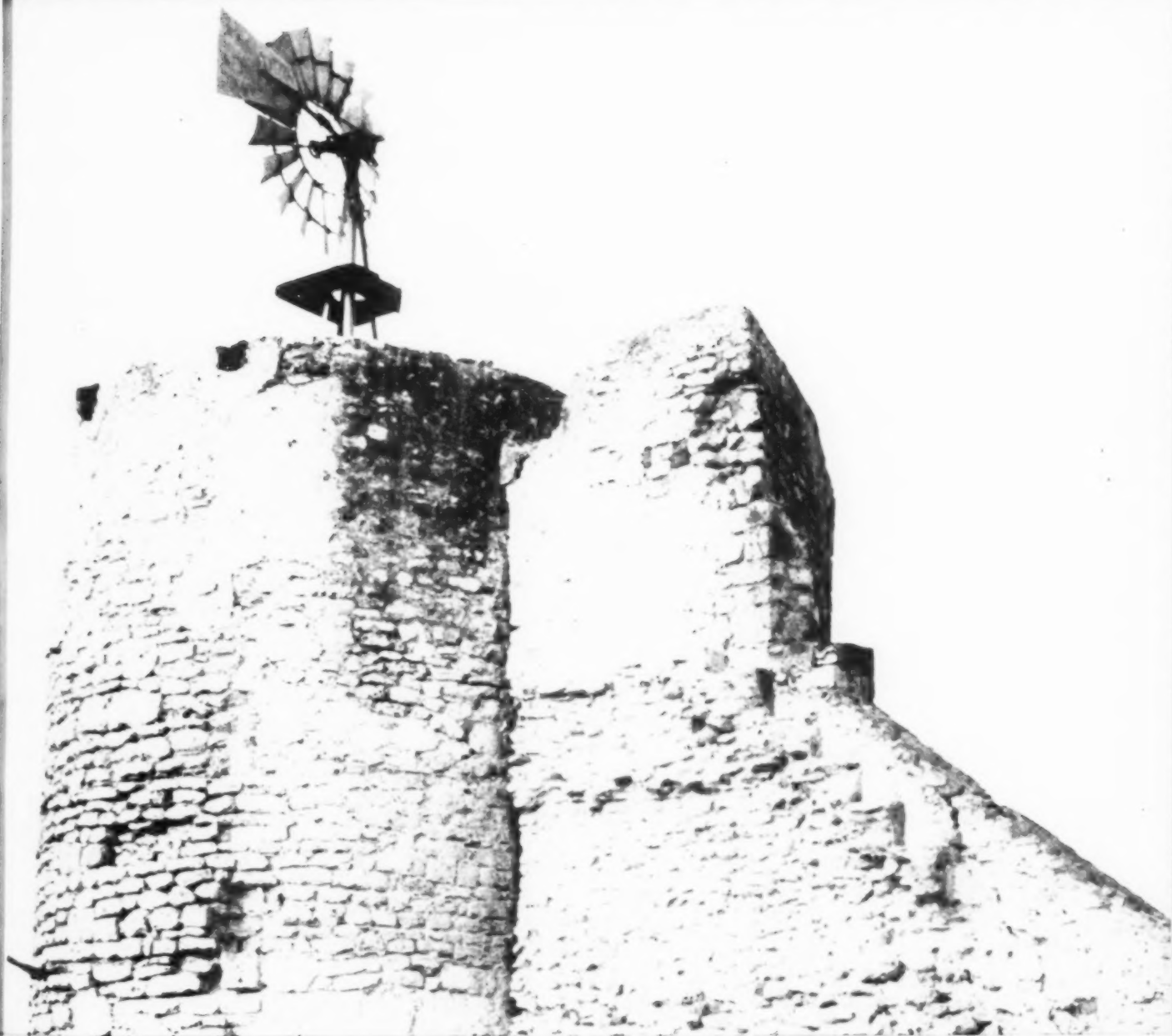
FLAVORS
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FEBRUARY 1958

THE MAGAZINE OF TASTE AND SCENT



Pollen in Cosmetics . . . Page 27 • Volatile Flavors of Strawberry . . . Page 45

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J. H. MOORE, Jr.
President

M. G. DE NAVARRE
Technical Editor

M. B. JACOBS
Flavor Editor

WM. LAMBERT
Editor

JOHN H. MULLER
Vice President and
Business Manager

WALTER M. BONE
Assistant Editor

A. van der SHAW
Art Director

WINSTON H. REED
Aerosol Editor

IRVING PINES
Circulation Director

MARY HARRIS
Advertising Production Mgr.

LOS ANGELES
McDonald-Thompson, Richard
Eubanks, 3727 W. Sixth Street,
Los Angeles 5, Calif. Dunkirk
7-5391

CHICAGO
868 Peoples Gas Building, 122
So. Michigan Ave., Chicago 3,
Ill.

EDITORIAL AND
EXECUTIVE OFFICES
48 W. 38th St., New York 18,
N. Y. LIncoln 5-3320

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& Aromatics

February, 1958 3



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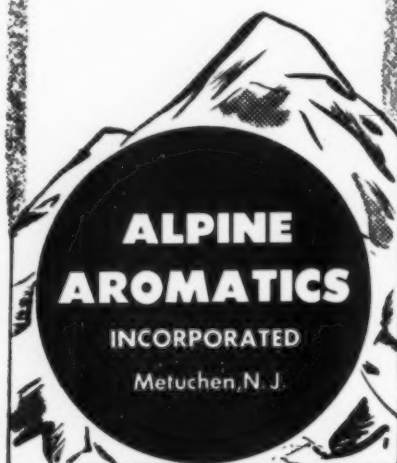
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Aerosol NOTES

by Dr. Winston H. Reed

Florida C.S.M.A. Meeting, Highlights

Chilly, Successful, Merry and Active, could be applied to the Hollywood Beach Meeting of the C.S.M.A., taking some liberty with the well-known initials of the Chemical Specialties Manufacturers' Association. To "Doc" Hamilton and staff, and to Messrs. D. M. King and R. E. Horsey, and other members of the Meeting and Entertainment Committee, should go full credit for a most enjoyable meeting. The full cooperation of the Open House Committee also added greatly to the enjoyment of this Convention. The pace was much less hectic than previous C.S.M.A. Meetings, a most welcome change in these ulcer-generating days. While Florida turned off the heat, for most of our stay, it did keep on with the sunshine. The wives present all seemed to be having a wonderful time and they added much to the general friendliness, so typical of this meeting. It was also a great advantage to have the meeting places so compactly arranged. Service and food were of the best. The only real sufferers were those on a diet.

The package display showed the continuing trend to better taste in packages. One package, which commanded a great deal of interest, both for its excellence and novelty, was the Sizl-Spray package, packaged for Anderson Foods by Western Filling.

There was much corridor talk re: nitrogen packing. The growth potential in the food industry has excited the interest of many fillers and merchandisers. John Buchanan, of Continental Can, Larry Garton, of American Can, and Earl Graham, of Clayton Valve, and many others, all informally expressed the hope that the development work in this food industry would be based on cautious and thorough technical study. Too rapid a jump to get there first with a new product could give the orderly development of food aerosols a real set-back if poor products resulted. Pete Clapp and John Morano, of Western Filling, also pointed out in conversations the patient and careful work that is required to successfully overcome the many "bugs" that a new product of this type presents. They have done a good job on the Sizl-Spray and expect to do others.

On cosmetic products, hair lacquer sales continue to show an outstanding growth pattern, according to many of

the people who are packing a large share of this business. Doug Atlas, of G. Barr and Company, particularly, is enthusiastic concerning the future growth trend for hair lacquers. DuPont's excellent market study on the untapped cologne market has stimulated an interest in that area with the result that many companies are increasing considerably their production and sale of aerosol colognes.

New Valves

Russ Sharpless, of Gulf Research & Development Company, discussed a new S.A. (Spray Anywhere) valve developed by A. J. Samuel and Sharpless, which will spray in either the upright or inverted position. The dip tube stem uses an internal sliding valve to allow the proper inlet port to function depending upon the position of the container. The production of this valve will be handled by various interested valve manufacturers under a Gulf license.

This device is one of several we have seen that have, as the objective, of being sprayable from any position. The U.S. D.A. have recently announced their patented development of this type, developed by Dr. Fulton and coworkers.

Pharmaceutical Aerosols

Dr. Martin Barr's paper on pharmaceutical aerosols was read by Tom Johnson. The opportunities for aerosol dispensing in many of the aspects of medical work were well reviewed in this paper. This material was also well reported in the notes on the Pharmaceutical Symposium on Aerosols, in the September 1957 issue of Aerosol Age. The number and variety of special dispensing valves for pharmaceuticals is continuing to grow. Many of these new valves were shown by the various valve manufacturers.

Paints

The paper on aerosol protective coatings, by Mr. Ludwig J. Hecht, of Lenmar Lacquers, reviewed the trends in the paint field, notably the gain in the use of nitrocellulose base formulations compared to acrylics. Mr. Hecht also indicated that there was a very profitable road ahead in development for aerosol paints and that there were many opportunities for technical improvements.

continued on page 14

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There is now a simple answer to the difficult problems involved in perfuming powdered bleaches, dry detergents, soap powders, household and specialty cleansers, scouring powders and other similar products. D&O has applied its own, unique spray-drying technique to perfume oils and compounds with the result that fragrance can now be locked-in...just as surely and permanently as flavor. The use of such spray-dried perfumes, vastly increases the shelf-life of the scented product...and assures that the fragrance is absolutely intact when it reaches the consumer...regardless of storage time. Upon its first contact with water...the full, rich perfume is released in all its original strength and depth. D&O has named its new group of locked-in perfumes—"FRAGRANCE-SEAL"—and trial quantities are available in all aromatic types for individual manufacturer testing. Write today.

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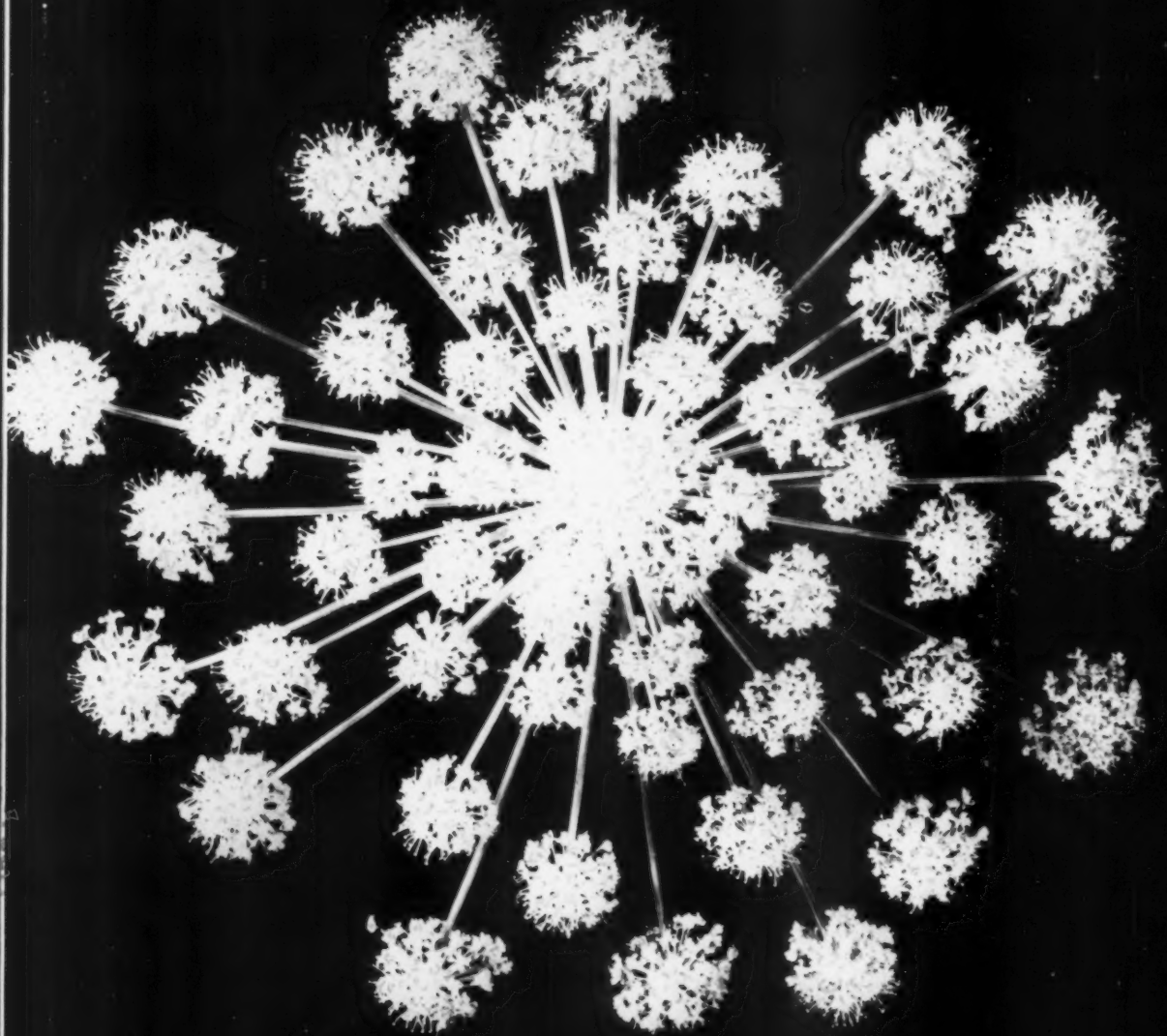
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MINUTE NEWS . . .

Shifts in Colgate-Palmolive Executive Scene

Michael P. Frawley has resigned as general sales manager of Colgate-Palmolive Co.'s household products division to join B. T. Babbitt Inc. as executive vice president. John Sugden, assistant brand manager on Vel has also resigned to join Babbitt as director of marketing. Mr. Frawley, a veteran of 25 years with Colgate-Palmolive Co., will be succeeded by Eugene E. Buckner former division sales manager. Assistant product manager Arthur T. Castillo who worked on Brisk toothpaste and Colgate shave creams has left to join an advertising agency. At Babbitt Mr. Frawley and Sugden will join its new president Marshall Lachner for 16 years vice president of Colgate-Palmolive's soap division.

New Division for Warner-Lambert

The Family Products Division recently set up by the Warner-Lambert Pharmaceutical Co. Inc. is to handle the Richard Hudnut and DuBarry lines of toiletries, Listerine, Bromo-Seltzer and Anahist. J. S. Hewitt is president of the division. Robert Urban is executive vice president in charge of the Hudnut-Dubarry lines and G. S. Fowler will serve as vice president for DuBarry, and M. F. Ruffle will serve as marketing director for Hudnut toiletries. DuBarry will continue to operate as a separate sales organization; but all of the other lines in the division will be handled by the former Lambert-Hudnut sales organization.

New Officers of Chicago S. C. C.

Officers for 1958 of the Chicago Chapter of the Society of Cosmetic Chemists are: Chairman, Seymour Kornblau; Chairman-elect, Peter Parker; Secretary, Lois Dow; Treasurer, Donald Laiderman. Committee chairmen are: Program, William H. Mueller; Hospitality, Betty Snyder; House, James H. Perry; Publicity, Frederick D. Timmons Jr.; Inter-professional relations, Emery D. Robert; Education, William G. Foley; Membership, Lura S. Ricketts; and Policy and By-Laws, Marshall Sorkin.

Waving Lotion Omitted in New Home Permanent

The new home permanent called Self, introduced in December by the Gillette Co., Chicago is an end-paper permanent designed to wave all types of hair without the use of a waving lotion. The ingredients are impregnated in special fabric end papers. Each contains a measured amount of waving formula—said to be the right amount for each curl. As a result the company states the unpleasant odor of waving lotions is eliminated as well as "dripping." The end papers are made of cloth instead of paper to give the user the benefit of increased sturdiness and to insure that the strength of the ingredients is not dissipated. Paper, the company points out, will tear when wet and crack or break when dry which fabric end-papers do not do. A special smaller size of end-papers is provided for neckline hair and areas where there are small amounts of hair, eliminating the necessity of cutting up end tissues to fit neckline areas. A one kit, one strength product, Self is designed for all types of hair, the user varying the processing time to suit her individual needs. A rod-type separate neutralizer permanent, Self is stated to have costly conditioners added so as to leave the hair soft and natural. The directions for its use state: "Start with clean, damp hair and wind hair on curlers using the special fabric end papers with each curl. When all curls are wound, wet hair with warm water. Wait 15 minutes, then neutralize. That's all and the wave is finished." Self is retailed at \$2 and each package contains 60 self waving fabric end-papers, neutralizer, an applicator and directions. Already the new permanent has obtained national distribution which will be completed in March. As a result of the reception of the new product in test markets the company reversed its long standing policy of introducing new products market by market. A heavy advertising campaign in all types of media has already been started.

Guest Memberships in Perfumers Society

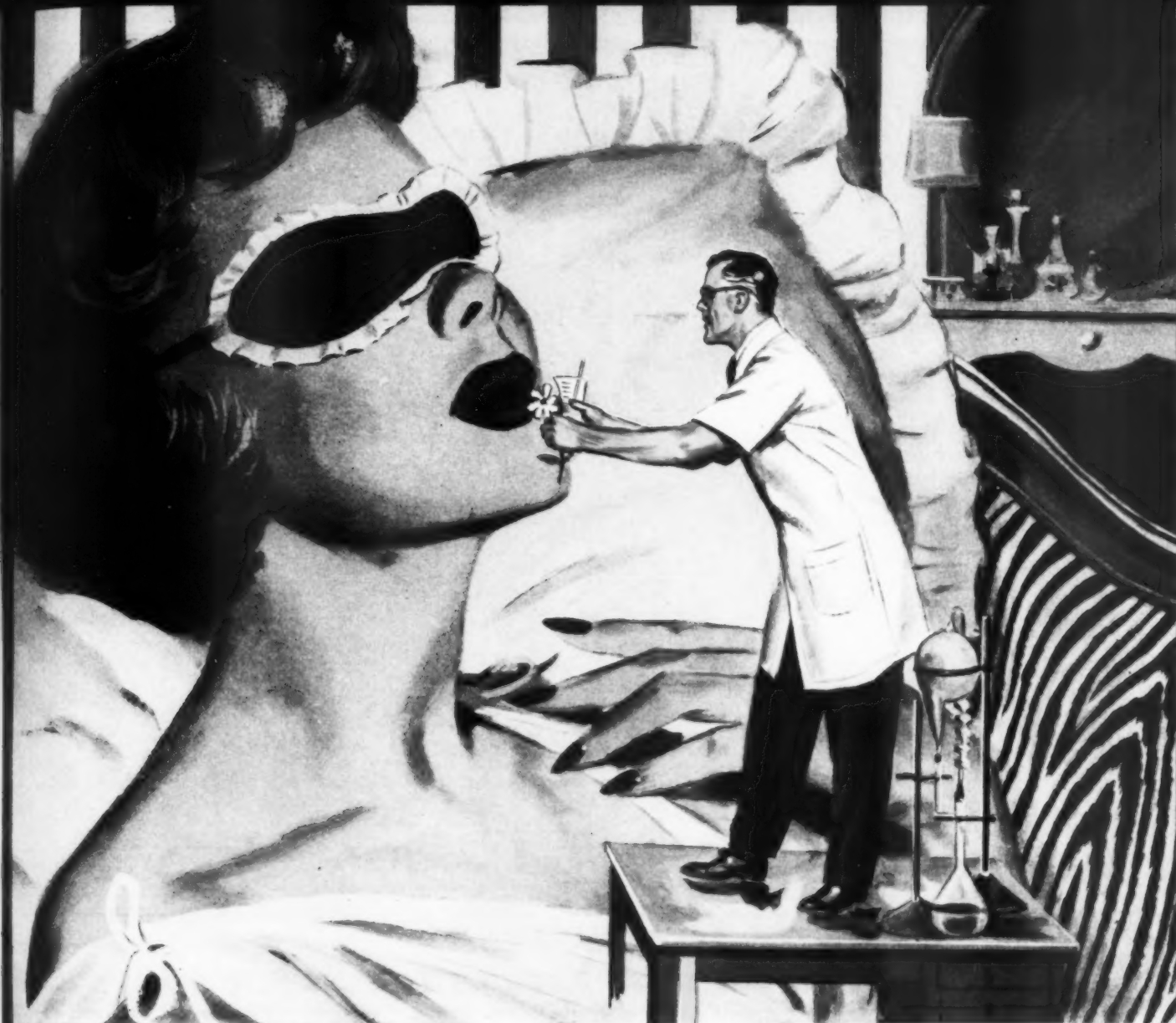
The American Society of Perfumers adopted guest memberships at its meeting January 15 in New York. Guest memberships may be extended to members of foreign technical societies visiting in the United States. They are to be awarded by the Secretary in the form of a guest membership card on presentation of suitable credentials from the visitor's society. Guest members will be permitted to attend all meetings but may not vote. The guest membership is effective only for the duration of the visitor's stay in the U. S. New officers elected are: Chairman, Pierre Bouillette; President, Jacques Masson; Vice President, Dr. Oliver L. Marton; Secretary, Harry Saunders; Treasurer, Edwin D. Morgan Jr. Directors: Walter Lengsfelder, Elmer L. V. Sulik, Dr. Herbert Sommer and J. Hilary Herchelroth.

Plans for T. G. A. Spring Meetings

To aid members of the Toilet Goods Assn. in making plans for the Spring meetings and annual convention the association has issued a bulletin giving relevant information on dates and places. *May 22*—Presentation of prizes to winners of the Charles S. Welch essay awards on the subject of Men's Toiletries. Starlight roof, Waldorf-Astoria. *June 5*—Meeting of Scientific Section. Astor Gallery, Waldorf-Astoria. The CIBS award will be presented at the luncheon between sessions in the Grand Ballroom to the author of the best paper published in the T. G. A. Proceedings of the Scientific Section during 1957. *June 25-29*—Annual convention, Poland Springs House, Poland Springs, Maine. Arrival is planned for June 25 in time for cocktails, buffet supper and a get acquainted evening. June 26 will be devoted to business sessions and election of officers. In the morning there will be a ladies "coffee" to make up matches for a ladies golf tournament to be played in the afternoon. In the evening there will be a dinner followed by entertainment and dancing. June 27 will be devoted to the industry golf tournament for men only. In the evening a golf dinner will be held with the award of prizes, followed by dancing. June 28 will be taken up with a business session and the installation of new officers followed in the evening by the president's reception and dinner. General chairman of the convention committee is John F. Hunsicker; chairman of the business program is Jack Mohr; chairman of the general entertainment committee is W. R. Kiner; chairman of the ladies entertainment committee is Mrs. Alec J. Dedrick. Paul E. Forsman is chairman of the golf tournament and Shockley C. Gamage is chairman of the committee on transportation.

Cosmetics from Aloe Vera Leaf Launched

A painful case of sunburn, a little known tropical plant that grows in the south of Florida and a man with a medical background combined to focus attention on a new and growing phase of the cosmetic industry. The sunburn was suffered by R. M. Stockton who found surprising relief by using the gel from the aloe vera leaf. Mr. Stockton, a salesman for a chemical company, was in the south of Florida when he was severely sunburned. He was told about the gel from the aloe vera leaf which he tried with marked success. That convinced him that there was a useful medical ingredient in the gel. In order to conduct research and clinical study he organized the Aloe Creme Laboratories in Fort Lauderdale, Florida. The company was incorporated in 1953 with a capital of \$25,000. Late in 1957 a complete line of new cosmetics containing the aloe vera gel was introduced in key cities of the country. Sales of well over a million dollars are anticipated this year. Three sizeable plantations are growing the plant. A single acre will produce about 3,600 mature plants each of which produces about 24 lbs. of raw gel per year. It takes from 3 to 5 years for plants to reach proper maturity. It is a member of the lily family. Its thick leaves are filled with the transparent gel. The leaves are shipped in trucks to the factory in Wisconsin where the juice is extracted. During a series of tests on a formula for a cosmetic product the hidden ingredient was isolated and became the basis for discoveries of beautifying and healing properties. It is reported that its penetrating and moisturizing action is so effective as to make it most useful in the formulation of cosmetics. The U. S. government has been studying Aloe-Creme and the aloe vera gel with regard to its use in the treatment of radiation and atomic burns. In the company's laboratories in Fort Lauderdale intensive research is being carried on behind closed doors. A number of independent laboratories and clinics are also conducting research.



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both in formulations and in valves. The growth potential in aerosol paints has been discussed in a very interesting and informative manner in the recent duPont market study covering this subject.

Silicones

The many diverse and often unexpected applications of silicones in aerosol formulations were covered by a paper by Thomas Reilly and D. V. Brown, of General Electric. Mold release agents, polishes, cosmetic and other applications were covered.

Aerosol Filling Techniques

Larry Hall, of duPont, discussed the advantages of combining part, or most of the propellant, with the concentrate to reduce or eliminate the need for refrigeration. The work was done in cooperation with G. Barr & Company. This general technique of filling has been used for some time by several of the larger fillers. This report, however, does give technical data on this method which has not been previously published and the report should be of real interest to many in the trade.

Aerosol Publicity

The report of Fred Lodes, of the Aerosol Publicity Committee, and Mr. O. M. Basford outlined the accomplishments of this past year in creating a general awareness of aerosols and pressure packaging in the public mind. The new TV publicity film, "The Magic Button," was shown. This film, which has been produced on a modest budget, is entertaining and informative. It should be very effective in generating more public attention to aerosols.

Octofluorocyclobutane

The latest issue of Aerosol News, by duPont, covers the possible application of octofluorocyclobutane (Freon C-318) in food products. This author has carried out work with this compound for several years and is also quite certain it will ultimately find a very useful field of application in the pressure packaging of pharmaceutical and food products. This is a cyclic compound with a tightly bound outwardly resistant fluorine shell. It has proved to be, on test, one of the most inert fluorocarbons known. It has one major disadvantage, probable volume price \$1.00 per pound. Perhaps volume production will later reduce this somewhat. This compound, however, has a high enough fluorine content so that it will always remain a comparatively expensive propellant, applicable only to special uses. But don't forget it, it has a future.

Pressurized Toys

One of the interesting spots in the Convention was the boat race, staged by the Freon Division of duPont, using as the motive power small steam engines

powered by a 6-oz can of F-12. I am quite sure that these toys are but the forerunner of a growing list of special applications for the pressurized gases. We have worked on this phase of application of liquefied gases for several types of gadgets and find the results most interesting and a great deal of fun. An aerosol powered blow-gun has been built, which works most effectively, and there are other types of designs, which will be translated to commercial reality in the very near future.

Silicones in Skin Care

Silicones, which now have an established industrial position in applications ranging from textile water repellants to fireproof rubbers, are becoming important components in cosmetic and dermatological formulations.

Silicone fluids function mainly as "barrier" materials since they repel water and water-borne irritants, yet transmit water vapor. They are extremely inert chemically and do not dissolve fats and oils of the skin. Moreover, they have low surface tension, spread easily over the skin, and form films of good permanence. In dermatological creams and ointments, the silicones themselves have no value as medicaments. The silicone film deposited on the skin merely protects it from further irritation, while the therapeutic agents in the formulation do their work of alleviating the condition being treated.

Because they are incompatible with many components commonly used in dermatological preparations, the silicones are generally incorporated as emulsions or creams. Oddly enough, although the silicones are emulsified with water, they do not wash off since they form an adherent film on the skin. Water will remove the emulsifier and leave behind the silicone which is held preferentially as a protective layer on the skin.

Among types of disturbances for which silicone-containing products have been found useful are "dish-pan" hands, diaper rash, and similar irritations due to prolonged water contact. The application of a silicone fluid has also been reported to have eliminated chronic eczema of the hands brought on by frequent washing or wearing of rubber gloves. Formulations of silicones in alcohol have given good results as sprays for relief of bedsores. Cosmetic chemists too have found silicones of value by virtue of the non-greasy character of the silicone film on the skin, and the smooth, pleasant feel it imparts. One of the more intriguing of the new silicones to reach the market is a material which has salicyl groups incorporated into the silicone structure. This provides sunscreening action—and with a material that does not wash off easily in water. Other silicone polymers being introduced for the cosmetic field are wax-like—for use in lipsticks and similar products.—*Food & Drug Research Laboratories Inc.*

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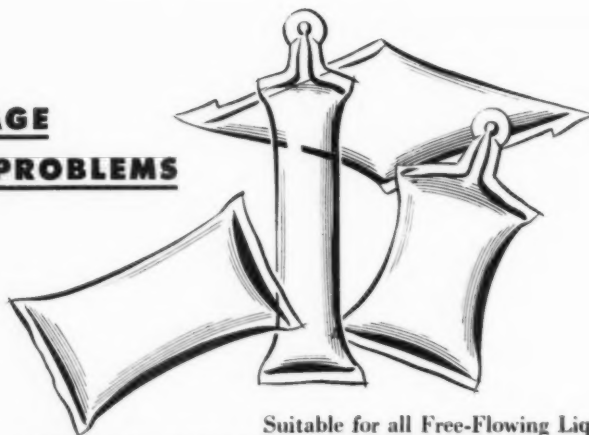
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QUESTIONS & ANSWERS

274: TRIOLEIN OZONIDE

Q. Please give me the names of suppliers of triolein ozonide and any directions as to best procedures, etc. R. D. N., Colorado.

A. You may purchase triolein ozonide from the G. F. Harvey Co., Saratoga Springs, N. Y. It has to be used in a water-free product.

275: BATH OILS

Q. Please send us any information you have regarding the composition of bath oils and other such products. D. B. G., France.

A. Bath oils are a diverse group of products. Some contain surface active agents in which perfume oils are dissolved. This acts as a carrier for the fragrance and for whatever small suspending effect or dispersing effect the wetting agent may have on insoluble soap film produced in the bath tub. The other type is the floating oil type which has an oil base to which the fragrance is added. The whole thing is dissolved in alcohol or some similar solvent. When this is put into the bath tub, the fragrance floats on the top and as a result, instead of being 99 per cent wasted in the body of the water where it cannot be smelled; it is all on the surface and can evaporate into the air. Generally speaking, a material such as isopropyl palmitate in alcohol serves as the vehicle for such a product to which you can add varying amounts of fragrance.

276: SUN TAN LOTION

Q. I am looking for a formula for a good sun tan lotion. I am especially interested in one with properties to tan darkly. C. W. I., Ohio.

A. The following is a formula for a sun tan lotion.

A	Mineral Oil	25.0%
	Sorbitan monostearate	4.0%
	Polyoxyethylene sorbitan monostearate	6.0%
B	Water	61.5%
	Preservative	q.s.
C	Sunscreen	3.5%
	Perfume	q.s.

Preparation: Heat (A) to 55°C. Heat (B) to 60°C. Add (B) to (A) with moderate agitation. Add (C) at 50°C. Stir until cool.

From time to time suggestions have been and will be made in this magazine with respect to processes, devices, materials, appliances, equipment and the like. It is not practicable for the writers and editors to have a patent search or examination made in connection with each such suggestion. Our readers are, therefore, requested and indeed urged to determine for themselves whether any patent or other right will be violated before acting on any such suggestion.

The sunscreen concentration will vary of course, depending upon the sunscreen used. If you use Giv-Tan, it will take about ½ to 1 percent to do the job. Sunscreen No. 2 takes 3½ to 4 percent. Both are available from Givaudan Delawanna. If you use menthyl salicylate it takes about 8 percent, and you will then adjust the mineral oil concentration accordingly. If you want to use one of the Escalols (Van Dyk and Co.) you will use somewhere between 1½ and 2 percent depending upon the Escalols and again the oil concentration will be adjusted accordingly. Use 5 percent Filstrosol (Schimmel & Co. Inc.). Sunaromes (Felton) vary in concentration depending on type. In each case, mineral oil is adjusted after screen selection.

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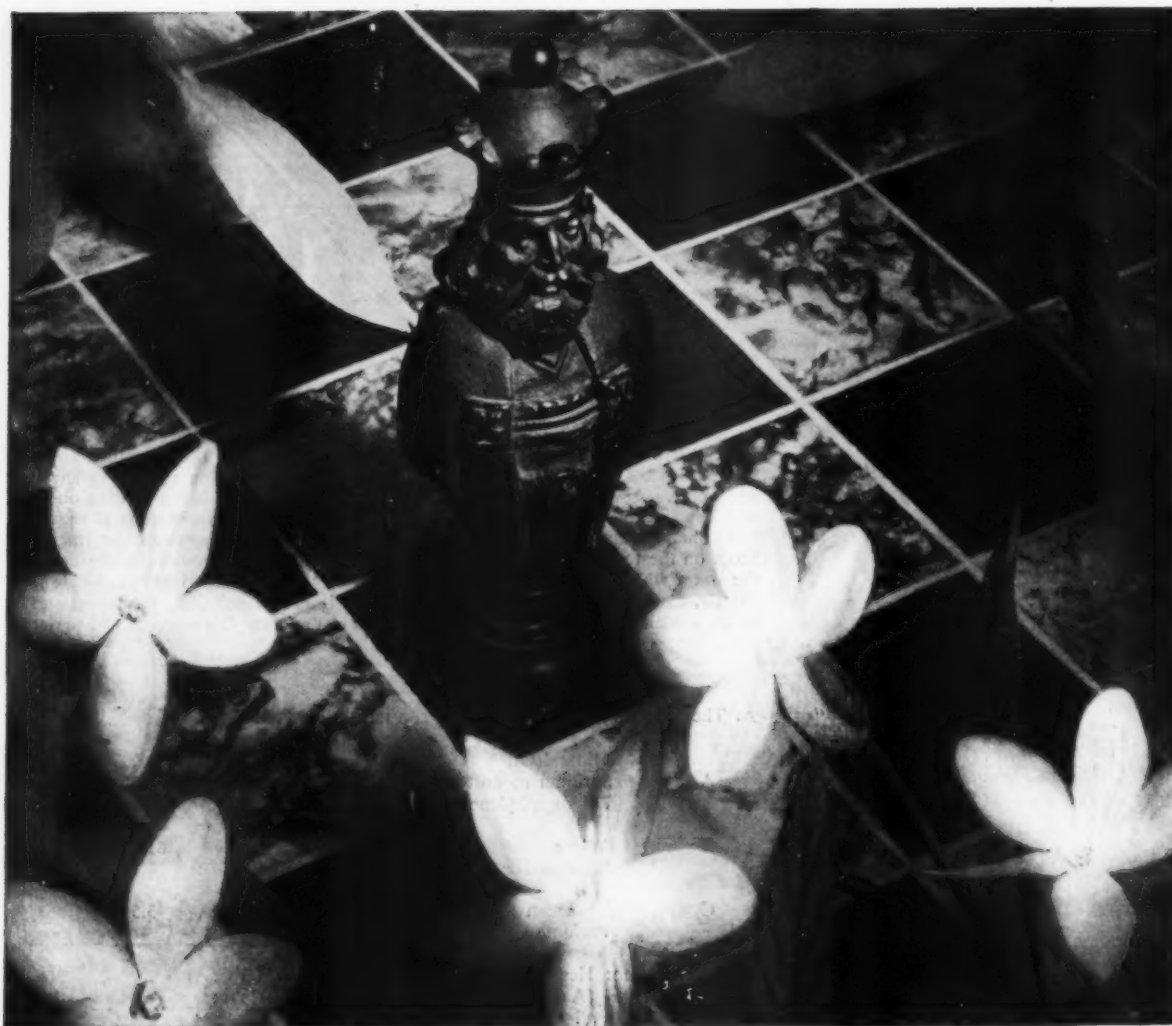
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Honors

On December 6, 1957, a letter from Eunice Thomas Miner, Executive Director of the New York Academy of Sciences stated in part: "It gives me great pleasure to inform you that at the Annual Meeting, held December 5, 1957, The New York Academy of Sciences, of which you are an Annual Active Member, unanimously elected you a Fellow of the Academy in recognition of your achievements in Science. Election to Fellowship is a distinguished honor, conferred on a limited number of members who, in the estimation of the Council, have done outstanding work toward the advancement of Science."

This honor is a real surprise. I am truly humbled and grateful to those who gave me this recognition. Really, any distinction I have gained over the years always carries with it the good fortune of having considerate employers, helpful laboratory associates, tireless secretaries and capable editorial help.

I hope that my continued efforts will show my appreciation of this honor.

Face Powder

There are so many valuable properties inherent to starch as face powder material that some further examination of the insolubilized starches should be in order. The sensitizing properties attributed to starches, if there are really any, more so here than with a lot of valuable cosmetic ingredients, may be overcome as a result of becoming insolubilized. The important thing is, the desirable properties will all be there.

Someday, someone will have done some real scientific work on the swelling properties of starch in pores, and once for all establish whether starch will or will not disintend them.

Unsung Heroes

Hundreds of us read the various house publications mailed by suppliers of materials to the cosmetic industry. Principally, these are from the perfume and essential oil houses as they are called in the trade.

In some, articles carry authors names so that if there is any glory in writing technical material, they get it. But so many of the articles (and some of the publications) carry no authors name. These are the unsung heroes. They just meet deadlines and keep publishing material covering every aspect of the cosmetic industry. To be able to do this month-in and month-out, they have to be pretty well qualified people and be willing to be martyrs for a cause.

So while this writer values each house organ he reads, he has a deep personal gratefulness to these martyrs who are in fact unsung heroes.

Dandruff Lotions

The cause of dandruff is still not settled, *Pityrosporum* oval notwithstanding. There are indications that more than one kind of organism is involved including other species of *Pityrosporum* and at least two *Staphylococci*. There appears to be agreement on the need for an antiseptic in such lotions. Furthermore, substantivity of the antiseptic or germicide seems to be desirable. That puts a value on cationic

germicides, hexachlorophene and bithionol, all of which have substantivity and carry-over.

Sulfur in some form appears to be almost essential. Whether a colloidal suspension, bound in an organic compound or released by chemical interaction as a gaseous material, sulfur seems necessary.

Then the vehicle. If a shampoo, your hands are a little tied by either existing patents or by the materials that will do the job. But in an after shampoo lotion, a study of skin dermatological agents can give you a lot of good ideas, not the least of which will be "moisturizing" ingredients. Nuff said!

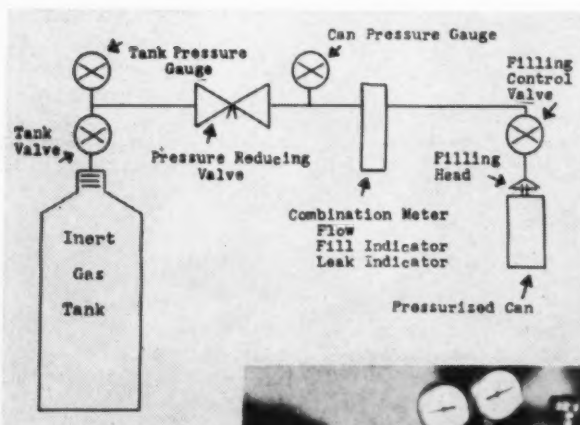
Cream Wave Fixative

We get rather regular requests for a cream hair wave neutralizer or fixative. The queries come from Europe for the main part. To answer these, we refer readers to French Patent 1,123,721, so they will not infringe, yet perhaps get some ideas on how to approach the problem. One formula suggests 15% of sodium bromate, 6% ethoxylated cetyl alcohol, 0.5% cholesterol and water to make up the balance of the 100%.

There are quite a number of ethoxylated higher alcohols, ranging from about 6 moles ethylene oxide up to 20 and possibly beyond this figure. The type used will determine the cream consistency and stability. A cetyl alcohol with between 6 and 10 moles ethylene oxide is about right. In place of cholesterol, wool wax alcohols may be more useful, for they are reputed to control consistency also. Essentially you are making an antiperspirant cream, but the bromate is

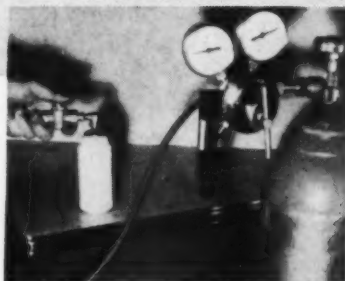
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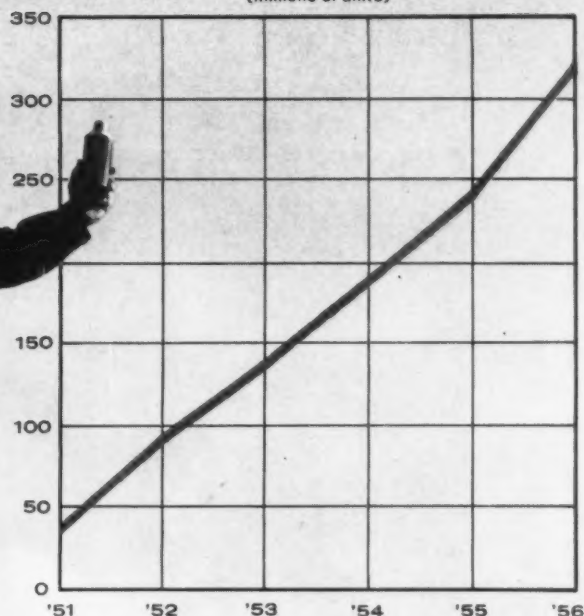
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replacing the astringent compound. However, avoid using polyols because the bromate is a rather powerful oxidizing agent. The same holds for other easily oxidized ingredients. Stick to the barest essentials—as you should in all cosmetic formulations.

Notes

Under this heading are covered ideas, news briefs or trade gossip perhaps. Anyway, they are items of varying importance. . . . Thus, the results of some recent insect repellent tests (in aerosols) make meta-diethyltoluamide (20%) look head and shoulders above ethyl hexanediol when tested against *Aedes aegypti* mosquitos. . . . A new sugarcane wax solvent consists of 15-30% single or mixed hydrocarbons (benzene, toluene etc) in ethyl alcohol—perhaps a valuable idea for use in formulating waterproof mascara creams. . . . We may get to know more about hair and skin biochemistry as a result of the discovery of a new enzyme which controls cystine production. . . . Hyamine 3500 is a new hard-water quaternary germicide effective in water with hardness up to 550 ppm hardness. . . . Recherches refers to an article that tells us that estrus is provoked in castrated female rats by estrone, 1 microgram in water solution, 3 micrograms in petrolatum, 2 micrograms in cold cream and 0.5 micrograms in a 60% alcohol base—so be careful of your vehicle in estrogen cosmetics. . . . Guillaume & Guillaume make some interesting comments on Royal Jelly—it is extremely sensitive to air, light and heat—Ardry says it should not be administered orally—it is antagonistic to ACTH—the chief therapeutic application appears to be in the treatment of physical and mental asthenia—it is best stored in lyophilized form in an atmosphere of nitrogen. . . . Glad to see Freddy Wells showing more interest in bacteriology. . . . monomethylol dimethyl hydantoin is a perservative according to U.S. Patent 2,773,834. . . . Parfumerie, Cosmetique, Savons a new French journal is the fusion product of two other journals. . . . A new one, La France et ses Parfums has just made its debut. . . . it is beautifully done—congratulations to the publishers and editors. . . . A study by Reding, reviews the cancerogenic properties of 1333 chemicals on animals, of which 322 would cause cancer—among them skatol and indol.

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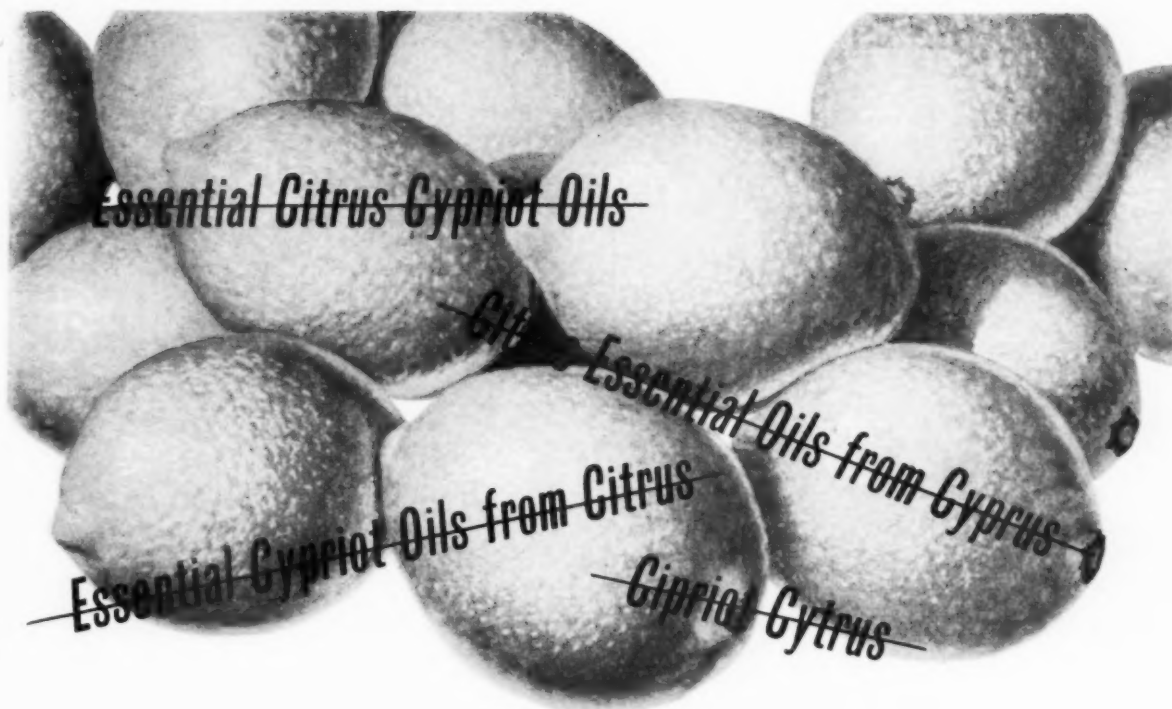
Of equal if not greater importance, the Encyclopedia serves to identify the composition of the particular materials and in many instances also lists specific types of cosmetic items in which they are used... plus a complete, cross-indexed classification of the various types of materials... plus the complete name and address of the supplier of each material.

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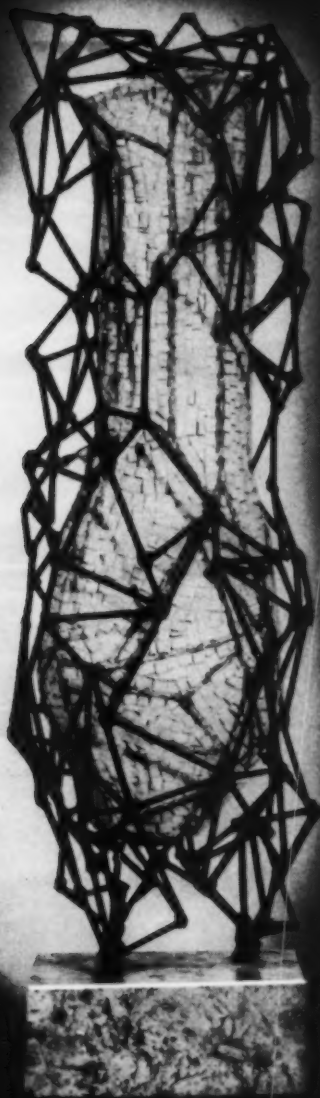
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Pollen

NEW BIOLOGICAL PRINCIPLE IN COSMETOLOGY

Dr. HENRI LUZUY*

Pollen, the fecund element of the flower, has recently been introduced into cosmetology. Next to the Royal Jelly of a rather similar biochemical composition but the use of which is difficult due to its instability and rapid loss of activity, pollen has been favored by a great number of authors as a natural biological complex efficiently intervening in cellular metabolism.

Is it justified? That is the first question a practitioner must ask himself and which we will try to answer by classifying and condensing the numerous works which have been published in the course of these last years on the chemical composition of pollen.

Thus we think that the variety, the richness and the polyvalence of its constituents will clearly appear and that the conclusions deriving therefrom will become self-evident to the cosmetologist.

Proteins and amino acids

The protein fraction of pollens is that which has been the most anciently and the most completely studied, on the one hand by apiculturists and on the other hand by allergists, the first being preoccupied by questions relating to the alimentation of bees, and the second by the problems arising through certain allergic reactions due to pollen, and to which we will refer later.

The total contents in proteins is rather variable according to the species; percentages inferior to 11%, others superior to 35% have been reported. In general the average is 25%.

On the other hand, the content in amino acids is about constant and all those which are considered as essential are found in pollens, either linked to protein or in a free state. Only tryptophane and phenylalanine are sometimes missing in certain species.

In a recent work, Niels Nielsen (1) and his collaborators have demonstrated by chromatography, the presence of 18 amino acids in samples of four different pollens: Zea Maize, Alnus glutinosa, Alnus incana and Pinus montana, after hydrolysis by boiling for 16 hours

with a solution of hydrochloric acid N/5.

Here are the results for a few, expressed in grams in proportion to 100 grams of protein, as given by these authors:

Amino Acids	Zea Maize	Alnus glutinosa	Alnus incana	Pinus montana
Arginine	6.3	9.8	6.2	6.4
Leucine	7.6	6	7.1	6.5
Lysine	5.9	4.7	5	5.1
Methionine	1.6	1.4	1.6	1.5
Phenylalanine	2.9	2.3	3	2.1
Tryptophane	0.6	0.8	0.4	0.8
Tyrosine	1.9	1.7	1.9	0.1

Previously, Weaver and Kuiken (2) had established a comparative table between four types of substances rich in nitrogenous materials of high nutritive value: pollen, soya flour, casein, whole powdered eggs. Extremely interesting results show that there does not exist appreciable difference among them regarding their content in amino acids.

	Average Pollen	Pollen from cereals	Soya Flour	Casein	Powdered Eggs
Crude Protein	26.31	26.88	48.41	100	70.69
Arginine	5.3	4.7	7.7	3.4	6.2
Histidine	2.5	1.5	2.3	2.7	2.4
Isoleucine	5.1	4.7	5.3	5.7	5.8
Leucine	7.1	5.6	8.0	8.7	9.0
Lysine	6.4	5.7	6.6	6.9	7.5
Methionine	1.9	1.7	1.4	2.8	3.3
Phenylalanine	4.1	3.5	5.1	4.8	4.8
Threonine	4.1	4.6	3.9	3.9	4.7
Tryptophane	1.4	1.6	1.5	1.2	1.5
Valine	5.8	6.0	5.3	6.6	6.8

* Reprinted from *Parfums, Cosmétiques, Savons*, No. 135, May 1957 p. 34.

It seems, according to the works of De Groot, that the amino acids present in pollen are sufficient to assure the nourishment of bees. Thus one would think that a protein substance containing these same amino acids and enriched with vitamins, would be susceptible to constitute a sufficiently nourishing artificial pollen. In reality, up to the present it has not been possible to accomplish this, which would indicate the presence in the natural pollen of other indispensable factors.

Von Euler, who has determined the quantity of desoxyribonucleic and ribonucleic acid of pollen of *Betula pubescens* and of a few other species, thinks that in general, the pollens contain important quantities of nucleic acids in the form of nucleoproteins.

Mrs. Sosa-Bourdouil and Sosa have extracted and determined the nucleic acids contained in the pollen of *Corylus Avenalla*, which has given them a content of 1.35% figured on the dry substance.

Carbon Hydrates

Without unduly dwelling on the constituents of secondary interest, in general let us simply say, that the pollens gathered by the bees always contain large quantities of reduced sugar, due in part to the presence of honey or of nectar in the liquid which agglomerates the grains of pollen.

On the contrary, pollens gathered mechanically and dried in the air are poor in reduced sugar and rich in non-reduced sugar.

All varieties contain important quantities of starch, a substance of which one knows the mitotic properties, certain ones such as Maize up to 22%.

Kuhn and Low have demonstrated the presence of lactose, as yet never indicated in a product of vegetable origin, in the pollen of *Forsythia*.

Let us point out also the presence of hexuronic acid in certain pollens, as well as that of ribose and desoxyribose because of their contents in nucleoproteins.

Lipides

The quantity of soluble matters in ether is in the average 5 to 10%. The richest pollens are those of the dandelions (14.4%) and of a few species of mustard (8.6 to 13.3%) and it is interesting to note that these are considered as being of special importance to the nourishment of bees.

A great number of components have been isolated and identified in ethereal and alcoholic extracts of pollen. The fatty portion, non-saponifiable, contain saturated hydrocarbons, higher alcohols and sterols.

Anderson has isolated from wheat pollen a nonacosane, an alcohol saturated in C30, a phosphatide and an ester of palmitic acid. The alcoholic extract which he has obtained contained about 25% of non-saponifiable substances, principally constituted by a mixture of sterols.

Mrs. Sosa-Bourdouil and Sosa have studied in remarkable works and with the greatest precision, the lipidic fraction of the *Corylus Avenalla* or hazelnut.

The ethereal extract represents 10.8% of this pollen's weight which contains:

Total fatty acids:

5.8% of the pollen or 54% of the ethereal extract

Nonsaponifiable:

2.63% of the pollen or 25% of the ethereal extract

Ketonic fraction:

0.055% of the pollen or 0.51% of the ethereal extract = 2% of the total nonsaponifiable.

Basic fraction:

0.017% of the pollen

According to the table set up by these authors, here

are the substances which they isolated in the natural state of pollen of *Corylus* and their yield:

Substances	% yield obtained and figured starting from the weight of:		
	Pollen	Ethereal extract	Nonsaponifiable
Tricosane C 23 H 48	0.014	0.13	0.92
Alcohol C 16 H 31 OH	0.039	0.36	1.55
Sterol I C 26 H 14 O	0.23	2.18	9.2
Sterol 2 C 21 H 36 O	0.029	0.27	1.1
Ketone A (dinitro-2-4 phenylhydrazone)	0.019	0.17	0.72
Ketone B (dinitro-2-4 phenylhydrazone)	0.0052	0.048	0.2
Ketone C (eluted by CH 3 HO)	0.0017	0.015	0.065
Acid C 12 H 24 O 2	0.012	0.11	
Palmitic Acid C 16 H 32 O 2	0.036	0.32	
Tricosanic Acid C 23 H 46 O 2	0.0076	0.068	

These few figures, to which will be added those of liposoluble vitamins, show all the interest and all the importance of the lipidic fraction which must be used in its entirety in the preparation of cosmetics.

Vitamins and Hormones

Literature is very abundant on this all important question of vitamin contents in pollen and numerous researches have been made on very diversified species (Vivino and Palmer, Ridi and Aboul Wafa, Weygand and Hoffman, Sagromsky, etc.).

Regarding the hydrosoluble vitamins, the most constant vitamins and those which are found in important quantities in pollens, we will limit ourselves by giving below the average results obtained by different authors, results indicated in gammas per gram of dry pollen:

Vitamin B 1 or thiamin	5.63 to 10.8
Vitamin B 2 or riboflavin	6.38 to 19.2
Vitamin B 6 or pyrodoxin	9
Vitamin PP or nicotinic amide	79.3 to 210
Pantothenic acid	16 to 51
Biotin	0.25
Folic Acid	3.4 to 6.8
Vitamin C or ascorbic acid	152 to 640

Moreover, since 1922, Anderson and Kulp have isolated inositol in pure form from alcoholic extracts of wheat pollen. This substance, which today is no longer classified in the Vitamin B group, is found therein in the important proportion of 1%.

The presence of Vitamin B12 in pollens, although indicated by certain authors, has not yet been determined with certitude. However, there at least exist factors of similar activity.

According to Pearson, the average quantity of pantothenic acid is 30.3 gammas per gram of dry pollen. Royal Jelly contains 17 times more which leads to believe the possibility of a synthetic of this biocatalytic substance from bees. On the other hand, Royal Jelly is poor in ascorbic acid while pollens are remarkably rich in same, as much as those fruits and vegetables which contain the most important proportions of this vitamin.

In general, the results of the works by the authors mentioned show that the quantities of thiamin, riboflavin, pantothenic acid, nicotin and ascorbic acids, are as high as those found in the other raw materials of

vegetable origin and sometimes higher.

In the four species that they have principally studied, Niels Nielsen and his collaborators have determined and measured a certain number of vitamins by microbiological method. They have given the following table (in gammas per gram of dry pollen)

	Zea Maize	Alnus glutinosa	Alnus incana	Pinus maritima
Riboflavin	6.2	11.2	12.1	5.6
Nicotinic Acid	71.8	82.7	82.3	79.8
Pantothenic Acid	12.7	4.2	5.0	7.8
Pyridoxin	5.5	5.7	6.8	3.1
Biotin	0.55	0.65	0.69	0.62
Inositol mmg/gr	30	3.0	3.5	9.0

These authors, as the preceding ones, have confirmed that, in general, the quantities of pyridoxin and nicotin acid were superior for the pollens gathered by the bees than for the pollens gathered mechanically. Sagromsky had already made the same observation for vitamin B1.

Regarding the lipo-soluble vitamins, Haydak and Palmer, then Vivino and Palmer, have demonstrated the presence in pollens of small quantities of vitamin E (about 0 mmgr. 32 per gram of fatty substance) while Royal Jelly seems totally deprived of it.

The same authors have indicated a content of 0.2 to 0.6 U.I. of vitamin D per gram of fatty substances of pollen.

Finally pollens are in general rather poor in properly so called vitamin A. However, Mameli and Carreta have pointed out important quantities of it in pollen of *Acacia Dealbata* and on the other hand, the lipochrome fraction of pollens contains in appreciable proportions certain carotenoids of provitamin A structure.

Thus we see by simple enumeration of these figures, and this phenomenon is about unique in the vegetable world, that pollens contain not only all the known vitamins B and probably all those which will be known in the future, but also all the hydro-soluble vitamins, as they contain the three essential lipo-soluble vitamins: A, D and E.

They constitute a complex and a polyvalence of biocatalytic substances of natural origin which correspond very nearly to the henceforth classic ideas on the use of these substances in cosmetology. Present in the epidermis, "indispensable to the accomplishment of chemical reactions which are the very base of life" (Professor Polonowski), they must be brought in a regular and constant manner, to the level of the epidermodermic cells, under a natural form, varied and balanced, to assure harmony between the different constituents of the cell: proteins, lipides and glucides.

From this standpoint alone, the aggregate of vitamins contained in pollens would constitute on its own a biological factor of great interest.

On the other hand, different authors have shown the presence in pollens of certain hormones, namely a gonadotropin hormone, an oestrogenic substance and certain sex hormones.

Yakushkina has revealed the presence of growth substances and has found a positive action on the test of a pea by pollen extract of *Corylus Avenalla*, Redemann has isolated from wheat pollen a simple pyridine and has also shown the activity of the growth regulator.

Enzymes

Numerous researchers have concentrated on this question which is particularly interesting because of the

multiple activities and complexes of pollens as far as being respiratory and reproductive cells.

Elser and Ganzmuller have indicated the presence of catalase, amylase and saccharase in pollens of *Alnus*, *Pinus* and *Corylus*.

Other authors have demonstrated that the alcoholic fermentation caused by pollens was identical to that of leaven. Recently Palumbo published a cytochemical study of pollens in the development stage of *Tradescantia paludosa* and of *Lilium longiflorum*; he has specially studied in these varieties the quantities of succinic dehydrogenase, acid and alkaline phosphatase and adenosine triphosphate or A.T.P.

Pigments

The diversity of shades appearing in pollens is due principally to two kind of vegetable pigments: flavones and carotenoids.

Derivatives of flavones have first been discovered in pollens. Heyl in 1919 isolated a glucoside of isorhamnetine and since then the presence of flavonic pigments has been reported constantly. These substances probably play an important part in the process of fertilization.

Vivino and Palmer have differentiated the carotenes and the xanthophylls in the pollens of different species. On an average, the content for the first is about 50 to 150 gammas to a gram and for the second, 140 to 400 gammas.

Von Euler and his collaborators have reported a particularly interesting fact: the pollens transported by bees generally contain carotene, while pollens of flowers pollinated by wind do not contain any trace of it. The other carotenoids contained in the first are in general alpha-carotene, lycopene, xanthophyll and zeaxanthin with traces of crocetin.

Let us point out that certain varieties of plants, such as the orchid or the arborescent heather, the latter very common in France, have almost colorless pollens; they are therefore not very rich in pigments.

Mineral constituents

The ash content in pollens varies from 1% to 7% with an average of 3%. Here are their composition according to different authors:

Potassium	20 to 45%
Magnesium	1 to 12%
Calcium	1 to 15%
Copper	0.05 to 0.08%
Iron	0.01 to 0.3%
Silicon	2 to 10%
Phosphorus	1 to 20%
Sulphur	1%
Chlorine	0.8%

The magnesium content corresponds to 1.4% of the ashes, or about 75 mmgr. for 100 grams of pollen; titanium has also been found in it.

Though pollens are relatively poor in iron, they are on the other hand exceptionally rich in copper, the quantities varying from 1.1 to 2.1 mmgr. per 100 grams of fresh substance.

Antibiotic properties

In a first communication, published in 1952 by the Societe de Chimie Biologique, Remy Chauvin and his collaborators has studied "a substance present in pollen which opposes the development of certain bacteria". In fact, they had remarked in the course of experiments on mice receiving pollen as nourishment, the rarity of micro organisms in the excrement of these mice.

Furthering this study and completing it, Remy Chau-

vin and Pierre Lavie have published in April 1956, in the "Annales de l'Institut Pasteur", their "researches on the antibiotic substance of pollen".

These authors have extracted the antibiotic principle from Maize pollen and have obtained it purified. It is soluble at the same time in water, alcohol and ether and it is thermostable. They have made the same remarks, and just as important as for the vitamins: Maize pollen gathered by hand contains less antibiotic units than pollen gathered by bees.

One gram of dry Maize extract gathered by hand contains 10.5 antibiotic units; one gram of this pollen produces 31 mmgr. of dry extract and contains 0.3 units per gram.

Authors have been able to put in evidence an intense antibiotic activity with reference to certain strains of *Proteus* and of *Salmonella*; also a very strong activity in the different strains of *Escherichia*, as well as an action in vivo on the intestinal flora of mice.

Pollen and the bees

Pollen is the great nutritive and vitaminic reserve of the hive, each consuming a yearly average of 40 kilos. This is why it has justly been called "bee bread."

The bees gather it by rapidly forming small balls constituted by thousands of pollen grains agglutinated with the help of gastric regurgitation. These small balls gathered by the apiculturist by means of an ingenious trap system placed at the entrance of the hive, serve in the preparation of dietetic products or of extracts for cosmetic compositions.

It has been noted that the composition of pollens in active principles is rather variable according to the species. There is therefore a definite interest in utilizing for preference pollens gathered by bees because they bring to the hive the most diversified varieties and, as it has often been shown, through their admirable instinct they chose the best kind.

Therefore the mixed pollens, gathered in the hives are the richest in carotenoid pigments or provitamin A, in vitamin B1, B6 and PP; they are also the richest in antibiotic substances.

In fact, the bees by moistening the pollens add different substances, sugars and diastases in particular, and their biochemical intervention far from being neglected, on the contrary should be sought after for a better use of pollens.

Pollen and allergy

The allergic sensitivity induced by pollens is a classic notion. Numerous authors, principally Americans and Germans (Osborne, Kanman, Farmer Loeb, Stull, Cook and Chobot; Weyland and Ripke, Harley, etc.) consider that the toxins which are responsible are of a protein nature.

The water-soluble protein fraction therefore must be eliminated from the aqueous extracts of pollen to be used in cosmetic preparations, the epidermis being particularly sensitive to allergenic substances.

Even if the risk of reaction was very small, there is no need to run the risk because what constitutes the exceptional biological interest of pollens in cosmetology, is not the proteins which are common substances and easily replaceable, but the combination of their lipides, their mineral salts and their biocatalytic complex: vitamins, hormones and enzymes.

Thus preference should be given in cosmetology to protein free extracts and a good method seems to us would consist in the use of different extracts, some soluble in oil phase and containing the aggregate of the lipidic complexes, others soluble in water phase, these being stable, deprived of all protein allergenic sub-

stances and containing the complex biocatalytic elements as well as the mineral constituents and the oligo-elements.

Conclusions

All preparations for the care, beauty and health of the skin or of the hair are susceptible of containing pollen extracts because these will allow a particularly appreciable enrichment in these preparations of natural biological substances which play an essential part in the physiological equilibrium necessary to the proper functioning of the epidermic tissues.

The vitamin action in cosmetology relying on the absorption of the active agent by the skin and leading to the regeneration of tissues, pollen extracts can be considered as factors of particular importance in the cellular metabolism and consequently in the care, the regeneration and rejuvenation of the skin.

In practice, and without our being able to attribute it to one particular active principle rather than another, the first visible effect of cosmetic preparations with a pollen extract base, and that which strikes all users, is the clearing of the complexion.

This observation will permit us to conclude, departing from the austere scientific language, by emphasizing this curious coincidence: "the brilliant colors of the complexion" is one of the meanings of the word "flower" and Littré who indicates it in his Dictionary, gives as an example a couplet by Lisette de Beranger:

For the flowers of your complexion
Where do you make your purchase?

Is it not charming to see the poetic image join reality and the own virtues of flower pollen bearing out the thought of our good song writer?

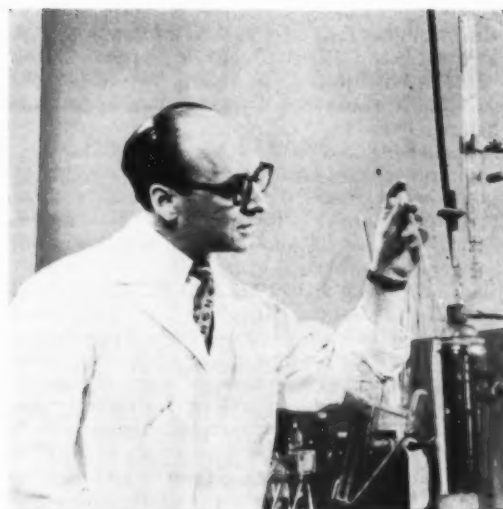
The only man who brags about his honesty is the one who suspects he is suspected.—*The Item*.

Could Hamlet have been written by a committee or the Mona Lisa painted by a club? Could the New Testament have been composed as a conference report? Creative ideas do not spring from groups. They spring from individuals.—A. Whitney Griswold, president of Yale University.



"Darling, for once would you really like to get your face clean?"

The Preparation of Aromatic Aldehydes



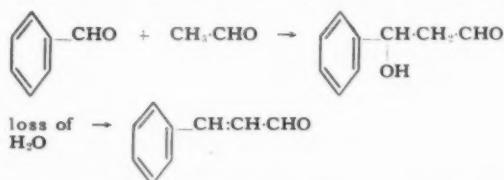
DR. KURT KULKA*

No. 11 - The Preparation of Aryl Alkyl Aldehydes

Some of the indirect methods applicable to the preparation of aryl alkyl aldehydes have been discussed previously; these will not, therefore, be dealt with in this section.

1. The Claisen-Schmidt Condensation

Some of the most important products of the aromatic industry are prepared by aldol condensations. Thus, benzaldehyde or ring-substituted benzaldehydes may be reacted with a methyl or methylene group adjacent to the carbonyl group of an aliphatic aldehyde (followed by loss of water) to yield in many cases valuable perfume and flavor compounds. The lowest member of these α , β -unsaturated aldehydes is cinnamaldehyde, which can be prepared from benzaldehyde and acetaldehyde:



According to Peine,¹⁸² cinnamaldehyde is obtained when a mixture of 10 g. of benzaldehyde, 15 g. of acetaldehyde, 10 g. of 10% sodium hydroxide and 900 g. of water is agitated for 8 to 10 days at 30° C.

Present-day procedures, which still make use of the same basic materials, require a considerably shorter reaction time. For example:

An agitated mixture of 75 g. of benzaldehyde, 12 g. of calcium oxide and 1300 g. of water, kept at 50° C., is added to 360 g. of a 35% aqueous acetaldehyde solution over a period of 3 hours. The reaction mixture is then acidified with hydrochloric acid, and the cinnamaldehyde extracted with benzene. Yield: 70%.¹⁸³

In another example:

A mixture of 150 g. of technical benzaldehyde, 3 g. of

sodium hydroxide, and 1000 g. of water is heated to 70° C., and 48 g. of acetaldehyde are added over a period of 1½ hours. The alkalinity of the reaction mixture is maintained at a pH of 8.3-10. After the addition, agitation is continued for 1½ hours. The mixture is acidified to a pH of 4 with 10% sulfuric acid, brought back to a pH of 8 with sodium carbonate solution, and extracted with benzene. The following are obtained: 63.9 g. of unreacted benzaldehyde; 86.9 g. of cinnamaldehyde; 25 g. of higher condensation products.¹⁸⁴

For the continuous preparation of cinnamaldehyde a vertical apparatus is described by Scipioni.¹⁸⁵ In this reactor a 1% sodium hydroxide solution is added, at 50° C., to a 2:1 mixture of benzaldehyde and acetaldehyde. The reaction product containing 90% cinnamaldehyde and less than 5% resinous by-products is separated continuously.

As can be seen from the examples cited, these condensations with acetaldehyde are run in an aqueous medium, which prevents the self-condensation of acetaldehyde. However, in many other aldol condensations water alone is rarely used as the solvent, being partially or completely replaced by methyl-, ethyl- or isopropyl-alcohol. With the higher homologs of propionic aldehyde the reaction fails to take place in an aqueous medium unless the aromatic aldehyde is activated—for example, by the nitro group in nitrobenzaldehyde. If an alcohol-water mixture is used for lower aldehydes, and alcohol or slightly dilute alcohol for the higher aliphatic aldehydes, the reaction mixture will remain homogeneous; this will provide the necessary contact between the reactants.

The preparation of α -methyl cinnamaldehyde takes place thus:

To a solution of 250 g. of benzaldehyde, 15 g. of potassium hydroxide and 380 g. of ethanol, 100 g. of propionaldehyde are added under agitation, at 10° C., over a period of 5 hours. The reaction product is then neutralized with acetic acid, the solvent removed by distillation, and the desired aldehyde obtained in an 86% yield.¹⁸⁶

For satisfactory conversions and yields it will be

*Fritzsche Brothers Inc.

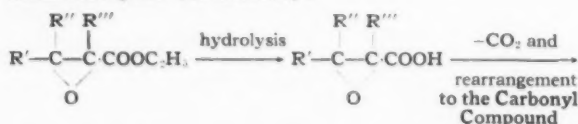
necessary according to individual cases to alter reaction time, temperature and method of combining reactants. In this connection it should be remembered that benzaldehyde usually reacts more readily than ring-substituted benzaldehydes (such as hydroxy- and alkoxy-benzaldehydes). Weizmann¹⁸⁷ condensed piperonal, anisaldehyde and veratraldehyde with heptaldehyde in pyridine solution, using piperidine as catalyst. (Piperidine proved more efficient than the usual potassium hydroxide catalyst.) However, these ring-substituted α -amyl cinnamaldehydes have no significant odor value.

Besides potassium hydroxide, other basic catalysts such as sodium hydroxide and barium hydroxide have been found useful in this reaction. Basic ion-exchange resins are becoming increasingly important in aldol-type condensations, and indeed have certain advantages. To a large degree, they prevent the self-condensation of aliphatic aldehydes, as well as resinification. After the reaction, they can be removed by simple filtration; neutralization of the reaction mixture is not required. Ion-exchange resins are polymers and the basic ones have either amino groups (weakly basic resins) or quaternary ammonium groups (strongly basic resins) incorporated into their molecule. Various grades of these resins are available, and it is necessary to choose the catalyst best suited to the purpose.

Also to be mentioned is the method of Meuly,¹⁸⁸ wherein the aliphatic aldehyde is added as the bisulfite compound to the reaction mixture—a method that to a large extent prevents the self-condensation of the aliphatic aldehyde.

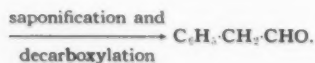
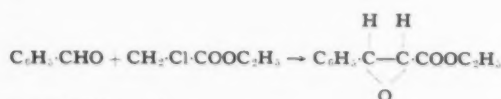
2. Aldehydes from α , β -Epoxy-Esters (Glycidic Esters)

Hydrolysis of glycidic esters result in formation of epoxy acids which on decarboxylation re-arrange to form aldehydes (or ketones):

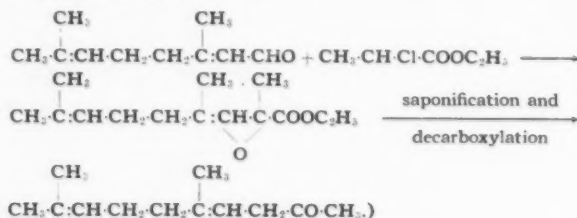


where R' and R'' = hydrogen, alkyl or aralkyl groups.

An aldehyde will result if R''' represents hydrogen or n-decyl.¹⁸⁹ For example, phenylacetaldehyde is obtained from benzaldehyde over the ethyl- β -phenylglycidate:



(If R''' = a methyl or ethyl group, the methyl or ethyl ketone will be obtained. An example is "Citralone"¹⁹⁰ a ketone which is obtained from citral and ethylchloropropionate thus:



The saponification and decarboxylation procedures of glycidic esters have been the subject of many inves-

tigations. These procedures can be carried out in various ways:

1. One mole of the glycidic ester is heated with 1 mole of sodium ethoxide in absolute alcohol. One mole of water is gradually added. On addition of ether the sodium salt of the glycidic acid will precipitate and can be filtered off.¹⁹¹
2. The glycidic ester is saponified with aqueous sodium hydroxide. For example: to a solution of 274 g. of sodium hydroxide in 770 cc. water are added 708 g. of ethyl- β -methyl- β -phenylglycidate. The mixture is agitated for 8 hours at 45-50° C. and then acidified to congo-red. The glycidic acid is extracted with benzene and decarboxylated with superheated steam at 180° C. Yield: 268 g. (58%)¹⁹²
3. The crude glycidic ester is saponified by the addition of sodium hydroxide solution while introducing steam into the mixture. A mixture of sulfuric acid and an organic acid, such as oxalic acid is added. Carbon dioxide is split off from the formed glycidic acid and by continuing the introduction of steam, the aldehyde distills.¹⁹³
4. The glycidic acid is treated with dry hydrochloric acid to obtain a chlorohydroxy acid. On heating this acid with semicarbazide-hydrochloride in pyridine solution, the aldehyde is obtained in a 75% yield.¹⁹⁴

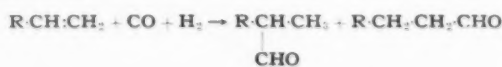
Recently Johnson and others¹⁹⁵ studied the formation and reactions of some glycidic esters. They recommend saponification by the Claisen method (see above), which gives the salt in good yield and purity. The free glycidic acid was found to be unstable and subject to rearrangements even under mild acidic conditions. In a typical example, only 10% of cyclohexenealdehyde was obtained, while 78% of 1-cyclo-hexeneglycolic acid was formed. The most satisfactory method consists in the preparation of the β -halo- α -hydroxy acid, which spontaneously decarboxylates under alkaline conditions.

A satisfactory method for the saponification and decarboxylation of phenylmethylglycidic ester to 2-phenylpropionaldehyde (hydratropaldehyde) follows:¹⁹⁶

133.0 g. of phenylmethylglycidic ester are slowly added to an agitated solution of 15.5 g. of sodium in 300 cc. of absolute alcohol. The reaction mixture is cooled to 15° C. and 15 cc. of water are slowly added. After standing overnight the precipitated salt is filtered off, washed with 50 cc. of dry alcohol and 50 cc. of dry ether, then added to a solution of 55 cc. of concentrated hydrochloric acid and 300 cc. of water. On warming carbon dioxide evolves, and an oil starts to separate. The reaction is completed by heating the reaction mass for 1½ hours on a steam bath. The cooled solution is extracted with 150 cc. of benzene, from which the aldehyde is liberated in a 65-70% yield (56-60 g.) by distillation.

3. The Oxo-Process

This process was first described by Roelen.¹⁹⁷ It consists in the hydroformylation of a double bond with carbon monoxide and hydrogen. It is carried out at high pressure and temperature in the presence of a cobalt catalyst. In most of the cases two isomeric aldehydes are formed—for example, from an olefin with a terminal double bond:



Oxo-reactions find extensive industrial application in the preparation of various aliphatic aldehydes, such as

n-butyral, iso-butyral and propionic aldehyde.

Aromatic (benzenoid) double bonds do not undergo this reaction. Double bonds conjugated with the aromatic ring do not lend themselves well to this reaction. Instead of forming aldehydes, the double bond will be either completely or to a considerable extent saturated with hydrogen.

The oxo-reaction with styrene is of particular interest, not only because the reactive double bond is at the end of a side chain, but also because it is conjugated with the aromatic ring. It has been the subject of various investigations. Thus, Adkins and Krsek¹⁹⁸ reacted styrene at 90°-200° C., and a pressure of 125-200 atmospheres, with carbon monoxide, hydrogen and cobalt carbonyl as catalyst. They reported that 18 g. of the starting material yielded 9.3 g. of crude hydratropaldehyde, b₁₀ 78-120° C. (80% aldehyde content).

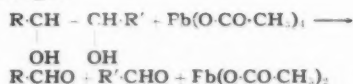
Wender, Levine and Orchin¹⁹⁹ found that synthesis gas (1 H₂: 1 CO) can be used in oxo-processes at 200-300 atmospheres and 180-185°C. Under these conditions the carbonyl group and the double bond are reduced. Thus, 2-phenylpropionaldehyde was reduced in good yield to the corresponding alcohol.

There is convincing evidence that in the oxo-process on styrene the two possible aldehydes (2-phenylpropionaldehyde and 3-phenylpropionaldehyde) are formed. Wetzel, McKeever and Levesque²⁰⁰ obtained 23% of the 2-isomer and 29% of the 3-isomer. In the following procedure styrene gave a yield of 46% of the two aldehydes:

165 cc. of styrene, 50 cc. of benzene and 15-18 cc. of catalyst (cobalt-carbonyl-solution—10% content) were placed in a 500 cc. pressure-bomb. A 50:50% carbon monoxide-hydrogen mixture was added, and the reaction conducted at a pressure of 3,000-3,400 p.s.i. at a temperature of 115°C. Reaction time was 55 minutes. After cooling, the crude reaction product showed a 50% conversion. The reaction product was separated from the catalyst by rapid distillation; on redistillation 46% of the distilled material consisted of the two phenylpropionaldehydes.

4. The Oxidative Cleavage of Vicinal Glycols with Lead Tetraacetate

This cleavage:



was first accomplished by Criegee, Kraft and Rank.²⁰¹ The reaction proceeds at room temperature, and is usually conducted in acetic acid solution or in a benzol slurry. To increase the reaction rate the addition of methanol or water is recommended.²⁰²

The preparation of phenoxyacetaldehyde from glycerol-2-phenyl ether²⁰³ will illustrate the procedure:

84 g. of the glycerol ether are added dropwise, and at room temperature, to an agitated mixture of 443.2 g. of lead tetraacetate in 500 cc. benzol. The precipitated lead diacetate is removed by filtration, and phenoxyacetaldehyde obtained in a 45% yield. This yield is increased to 60% by avoiding the large excess of oxidant present during the reaction.²⁰⁴ Thus, 443.2 g. of lead tetraacetate, mixed with benzol, is added to 168 g. of the glycol at 20-25°C. over a period of two hours.

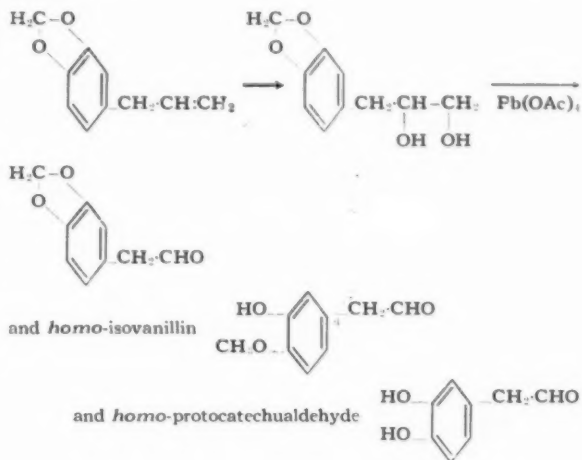
Another way of conducting the reaction is to add the lead tetraacetate to the glycol solvent solution or mixture in small portions, holding back addition of each portion until the previous one has reacted. After completing the addition, the reaction product is tested for

the presence of unreacted lead tetraacetate thus:

One drop of the reaction mass is placed on a moist starch-iodine paper. A blue coloration indicates the presence of the tetravalent lead. In this case, the unreacted part of the oxidizing agent is destroyed by the gradual addition of glycerol or oxalic acid.

Oxidation with lead tetraacetate proved to be a convenient way of obtaining aldehydes, where other methods were only applicable with difficulty.

Homo-piperonal, a colorless liquid, b₁ 115-120° C., was prepared in 91.7% yield from safrol, via the safrol glycol:²⁰⁵



were synthesized from the corresponding allyl-compounds via their glycols.²⁰⁶ However, none of these compounds has been found to be of particular interest to our industry.

Lead tetraacetate can be prepared in two ways:

1. From glacial acetic acid and acetic anhydride and red lead.²⁰⁷



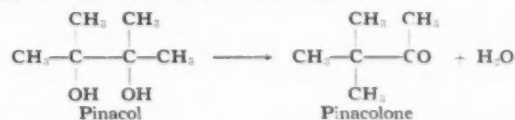
2. From a mixture of acetic acid, acetic anhydride, chloride and red lead.²⁰⁸



Oxidations similar to those produced by lead tetraacetate and periodic acid are also effected by sodium bismuthate in an acid medium. Using this method the fission of 1,2-glycols to aldehydes or ketones can be carried out in aqueous phosphoric acid at 17-18° C. over a reaction time of 3-4 hours.²⁰⁹

5. The Pinacol-Rearrangements of Aromatic Vicinal Glycols to Aromatic Aldehydes

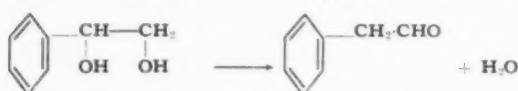
The dehydration-rearrangement of vicinal glycols to aldehydes or ketones is known as the "Pinacol-Rearrangement." This name is derived from Pinacol, a glycol which undergoes this reaction:



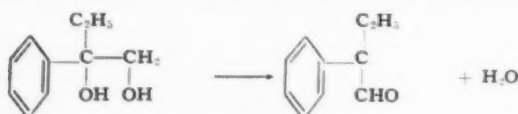
While such rearrangements are usually accompanied by side reactions—e.g., ether and diene formations—they are convenient methods for obtaining certain carbonyl compounds. Whether an aldehyde or a ketone results will depend on the characteristics of the compound (i.e., the migratory aptitude of atoms and groups

connected with the two hydroxyl groups). Vicinal glycols with a primary hydroxyl group yield, as a rule, aldehydes. Secondary-secondary or secondary-tertiary vicinal glycols give either aldehydes or ketones. In the course of the reaction the molecule will rearrange to the most stable form, which can be either the aldehyde or the ketone. Pinacol-rearrangements are part of the so-called 1-2 shifts, the mechanism of which was explained by Whitmore.²¹⁰

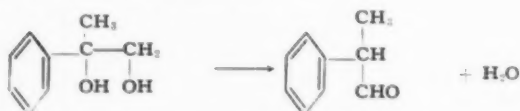
Among the earlier examples of pinacol rearrangements of aromatic glycols to aldehydes is the preparation of phenylacetaldehyde by heating phenylethylglycol with 1 part of sulfuric acid and 4 parts of water:²¹¹



Another example is the preparation of α -phenylbutyraldehyde, obtained by Stoermer²¹² by heating the corresponding glycol with dilute hydrochloric acid for 3 hours:

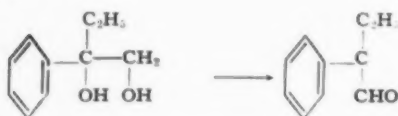


Danilov and Venus-Danilova²¹³ stated that secondary and tertiary aldehydes, when treated with concentrated sulfuric acid, are often isomerized to ketones. (This rearrangement includes certain aromatic aldehydes prepared by the pinacol-rearrangement.) As a proof, they regenerated methyl phenylacetaldehyde from its carbazone with 15% sulfuric acid. On treatment of the same carbazone with 50% sulfuric acid, methyl benzyl ketone was obtained. Danilov and Venus-Danilov recommended the use of very dilute acids at higher temperatures, or more concentrated acids at lower temperatures, to be used in these aldehyde syntheses. For example, methyl phenylethylene glycol was treated with oxalic acid and a small amount of water at 115° C., or with 50% sulfuric acid at 50-55° C. in a carbon dioxide atmosphere to give hydratropic aldehyde:



Many pinacol-rearrangements were made by Tiffeneau and his co-workers.²¹⁴ The results of their important work were summarized in 1938.

Ramart-Lucas and Salmon-Legagneur²¹⁵ passed α -ethyl- α -phenylethylene glycol mixed with steam in a vacuum over kieselguhr at 250°-300° C. and obtained α -phenylbutyraldehyde:



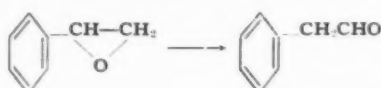
Dehydration-rearrangements (although not true pinacol-rearrangements) of glycols of vinyl aromatic compounds to aryl alkyl aldehydes in the vapor phase have more recently been carried out by Emerson.²¹⁶ For example, phenylacetaldehyde was prepared in a 58-72% yield by passing a solution of 20 g. of styrene glycol and 30 cc. of ethyl alcohol through a tube packed with a catalyst consisting of phosphoric acid on pumice for 35 minutes at a temperature of 200-225° C. and a pressure

of 103-125 mm., simultaneously introducing an excess of steam into the reaction tube.

6. Aldehydes from Epoxides

Epoxides (the ethers of α -glycols) can be rearranged in a 1-2 shift to yield—in most cases—the same carbonyl compounds obtained by the pinacol-rearrangement of the respective glycols.

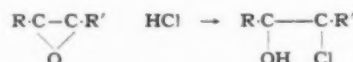
In one of the earlier examples of this arrangement, Fourneau and Tiffeneau²¹⁷ treated styrene oxide (phenylethylene oxide) with metallic catalysts at 200° C. to obtain phenylacetaldehyde:



In more recent examples of this reaction, Sexton and Britton²¹⁸ fed the vapors of styrene oxide, pre-heated to 200-225° C., into a tubular catalyst chamber which was kept at 350-400° C. This chamber (internal diameter 4 inches) was charged with 2.5 liters of magnesol pellets (synthetic hydrated magnesium silicate) of $\frac{3}{16}$ inch thickness and $\frac{1}{4}$ inch diameter. Styrene oxide was reacted at a rate of 2.5 lbs. per hour for a 75 hour period. Phenylacetaldehyde in a 90% theoretical yield was obtained. An almost theoretical yield of phenylacetaldehyde was obtained²¹⁹ when styrene oxide was passed at a temperature of 170° C. over activated aluminum oxide (in the form of lumps) at a rate of 1.2 g. of styrene oxide to 1 g. of aluminum oxide, and over a period of one hour.

While this rearrangement is usually carried out in the presence of catalysts such as zinc chloride, silica, pumice or aluminum oxide, distillation at atmospheric pressure is sufficient with some of the higher molecular epoxides. Thus Danilov and Venus-Danilova²²⁰ distilled 9 g. of methyl phenylethylene oxide at 766 mm. pressure to obtain 8.2 g. of methyl phenylacetaldehyde.

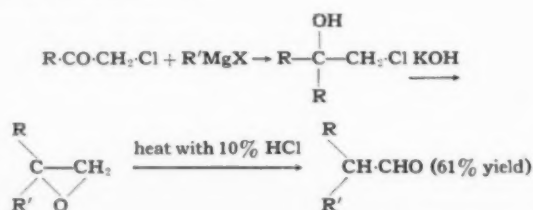
On treatment with hydrochloric acid, epoxy compounds form the corresponding chlorohydrins:



This reaction is rapid, quantitative and was introduced by Kerchow²²¹ as an analytical procedure for the determination of ethylene oxide. Modifications of this procedure are still used for the determination of oxirane oxygen. A vapor-phase dehydrohalogenation and rearrangement of halohydrins of vinyl aromatic compounds to aldehydes was used by Emerson.²²² For example:

25 g. of styrenechlorohydrin are passed through a quartz tube packed with silica, for 35 minutes, at a temperature of 520-550° C. and a pressure of 135-155 mm., while steam is simultaneously introduced into the reaction tube. 13 g. of phenylacetaldehyde result. (This, however, contains a small amount of β -chlorostyrene.)

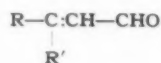
The preparation of substituted ethylene oxides and their isomerization to the aldehydes was carried out by Barnes and Budde:²²³



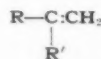
Epoxidation and hydroxylation of ethylenic double bonds with peracids is the topic of a review-discussion by Swern.²²⁴ DuPont and Becco²²⁵ give additional literature and information.

7. Cinnamaldehydes by the Formylation of Styrenes

The preparation of aromatic aldehydes of the general formula



from ethylene compounds having the general formula



with N-methylformanilide and phosphorus oxychloride was first described in the patent literature.²²⁶ In these formulas R can represent either hydrogen, an aliphatic, aromatic, aryl alkyl, alicyclic or heterocyclic group. R' stands for an aromatic ring system or a group which contains at least one unsaturated bond in conjugation with the ethylene bond.

Among the products which were prepared this way is cinnamaldehyde:

Thus 150 g. of phosphorus oxychloride are added dropwise under agitation at room temperature to 100 g. of N-methylformanilide. Agitation is continued for 2 hours, then 52 g. of styrene are added at a temperature not exceeding 25° C. After completion of the addition, agitation is continued for 24 hours, when the reaction mass is poured on ice and made alkaline with sodium hydroxide. Steam distillation yields cinnamaldehyde and methylaniline. The latter is removed with a 10% hydrochloric acid solution.

Recently, Schmidle and Barnett²²⁷ reported the preparation of a variety of α - and β -substituted cinnamaldehydes by the formylation of the corresponding styrenes with dimethylformamide in the presence of phosphorus oxychloride.

Among these substituted cinnamaldehydes are *p*-methylcinnamaldehyde, β -methylcinnamaldehyde, *p*- β -dimethylcinnamaldehyde, *p*-isopropyl- β -methylcinnamaldehyde, *p*-methoxy- α -methylcinnamaldehyde and α -piperonilidenpropionaldehyde.

The reaction was carried out via one of the following two methods:

Method A (Excess Dimethylformamide)

77 g. of phosphorus oxychloride were added dropwise under agitation to 146 g. of dimethylformamide, maintaining the reaction temperature below 20° C. Then half a mole of the respective ethylene compound was added, and the mixture heated slowly to 55° C., when an exothermic reaction occurred. Cooling was required to keep the temperature between 55° and 60° C. After the evolution of the heat had subsided, the reaction mass was heated to 75°-80° C. for 1 hour. Then, while cooling in an ice bath, a solution of 278 g. of anhydrous sodium acetate in 700 cc. of water was added, under agitation, to the reaction mixture—slowly at first, then rapidly, and the aldehyde extracted with ether.

Method B (Ethylene Dichloride as the Solvent)

A technique similar to that described by Silverstein, Rysiewicz, Willard and Koehler²²⁸ was used. 40 g. of dimethylformamide were treated with 84.5 g. of phosphorus oxychloride. 125 cc. of ethylene dichloride were added under agitation. Half a mole of the ethylene compound dissolved in 125 cc. of ethylene

dichloride was added under agitation and cooling over a period of 40 minutes. The reaction mass was then refluxed for 15 minutes and cooled to room temperature. A solution of 278 g. of anhydrous sodium acetate in 600 cc. of water was added under agitation and cooling. Finally the mixture was refluxed for 15 minutes, cooled and the aldehyde extracted with ether.

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Declining Profits

With current emphasis on declining profits few realize that this trend started six years ago in 1951 at the end of the Korean boom. For example, the average pre-tax earnings on sales of the 100 largest corporations declined more than 16% in the past five years. For the 400,000 or so smaller companies this decline averaged 20%. The foregoing figures are part of a continuing trend which has affected the chemical process industries along with other segments. In times such as these manufacturers are well advised to undertake a search for new products and new technologies. Through production and sales of more profitable and better products the trend can be reversed.—*Chemonomics*.

Challenge Faces Essential Oil Industry



New Officers: Pierre J. Coutin, executive committee; Gert Keller, president and Frank Dittrich, secretary-treasurer



Notables at the meeting included Charles Fischbeck, P. C. Burnham, Philip Chaley and always cheery Ernest Durrer



Executive Committee: Edward Manheimer, Charles P. Walker, Pierre Coutin and R. E. Horsey. John Cassullo was absent

Economic factors offer opportunity for planned program of expansion . . . Gert Keller elected president for 1958

The challenge facing the essential oil industry is how to increase consumption both in the United States and abroad, Pierre J. Coutin, president of the Essential Oil Assn. of the U. S. A. told the members of the association at the annual meeting in New York, January 10. With Asia, Africa and especially Russia raising their standards of living there is no question that essential oils will be demanded in ever increasing volume, he stated, and it is the duty of the industry through a planned program to cultivate increased tonnage and make it so inviting that invested capital will be interested in the future potentials of essential oils.

During the past year there has been over production in some instances and synthetics have played a role in many instances where replacements were required. The general price level declined. The devaluation of foreign currencies, notably in France, and political unrest in other countries plus a world inflationary trend all had their effects on the market. For example the price of bois de rose and lemongrass were affected by synthetic replacements; that of bergamot and orange oil Florida by a short supply. Devaluation of the French franc affected clove leaf, geranium Bourbon, lavender, lavandin and ylang ylang. Inflation in Spain resulted in higher prices for rosemary and spike lavender. Political disturbances in Indonesia had their effects on patchouli and in Haiti did the same for vertivert.

Officers elected for 1958 are:

President, Gert Keller, Schimmel & Co.

Vice President, W. E. Rogers, Lautier Fils.

Secretary-Treasurer, F. F. Dittrich, Ungerer & Co.

Executive committee: Pierre J. Coutin, Ph. Chaley, Inc.; Robert E. Horsey, Givaudan-Delawanna Inc.; John L. Cassullo, Fritzsche Brothers Inc.; Charles P. Walker, van Ameringen-Haebler Inc.; Edward Manheimer, J. Manheimer Inc. and George McGlynn, Magnus, Mabee & Reynard Inc.

The highlight of the import deliberations during the past year was the demand by the Cochin Lemongrass Oil Exporters Assn. in India for the adoption of a quality guarantee statement with differences in the citral content on arrival to be determined by an official arbitrator. It was felt that this was not an association matter as it is predicated primarily on the contractual relation between buyers and sellers; so no official action was taken. Brazil's new tariff law which includes under a restrictive consumer goods clause came up for consideration and the association has appealed to the Committee for Reciprocity Information for relief. The attendance was 183. The annual banquet followed the meeting.



J. W. Voit, F. N. Cordero, R. L. Daggett, F. G. Buehler, C. W. Waegelin, L. M. Allstadt and Frederick J. Lueders



Irving Bennett, Dr. Victor Fourman, Hans Wesemann, Edward Langenau and G. Gilbertson snapped prior to the banquet



William Barlow, Charles Bryan, Wilfred Rogers, Waldo Reiss, Lloyd Fischbeck and Shockley Gamage before the fun began



Edward Fearn, Robert Zeller, Frank Dittrick, Hans Wesemann and Alfred J. Johnson enjoying the cocktail party



Charles Pisano, Wilfred Rogers, Louis Davids, Norman Gallagher, Charles Fricke and Richard Schwarz drink a toast



Thomas Bush, Robert Cook, Edgar Ellis, Maurice Couderchet, Howard Miller and William Fairhurst have a friendly chat

The Problem of Fixation

Some Remarks Concerning the Perfuming of Plastics

DR. T. BASSIRI*

To say that a perfume enjoys exceptional qualities because it is rich in fixing elements is a conception of the mind; this thus gives an unjustified primacy to some advantages of a quantitative character.

On the other hand, to deny the real merit which is due to an ancient technique, the importance of which is borne out in practice, is to show signs of partiality and to lose at the same time the unquestionable benefits of the evolution of a perfume in its final phase.

The problem of fixation has often been misunderstood. The very terms of its particular vocabulary have been misconstrued. Some—and this is the case of the general public—who are ignorant of the deportment of an odorous system give the expression "to fix a perfume" its etymological meaning, an absolute signification. Now, it must be admitted that there is an end to everything. An odor cannot last forever and it is meant to vanish after a certain time, even if it were retained by the fictitious holdings of an incorruptible fixing agent.

Where does one stand exactly? What attitude must one take in controversies? Experiment alone may bring a worthy answer to the problem. Indeed, fixation is neither a fiction nor an infallible means. So, when one speaks of "fixing a perfume" one would do well to bear in mind that in this expression,

there is some truth:

some truth for the delaying of evaporation is physically conceivable and answers to experiments;

there is some untruth:

some untruth for within the limits of its action it has been given an importance not in keeping with reality.

The idea of fixation is connected, in any case, to the fall in vapour tension, in the system being considered, a fall which will consequently delay evaporation. But this delaying of evaporation is not sufficiently noticeable when dealing with volatile products, Amyl acetate for example, for the fixation to show itself in practice or for it to play a determining or even insignificant role to the benefit of olfaction.

On the other hand, the phenomenon shows itself when the mediums in presence "the fixing agent and the fixed substance" figure among bodies of high molecular weights and consequently high boiling

points. In this case and precisely when the fixing agent proposed is olfactively neutral, in other words inodorous, or of little odor, one may deduce, wherever the olfactive sensibility allows it and by way of comparison, its odor persistency or longevity, in connection with the nature of the fixing agent used.

It is to be pointed out that the substances recognized as being fixing agents are, generally speaking, odorous bodies themselves and have low vapour tensions such as synthetic musks, heavy odor essences enclosing notably sesquiterpene and polyterpene compounds.

But, has one need to call to mind that the excessive accumulation of these elements in the medium is neither a desirable thing nor a safe technique? The very principle of the conception of a perfume, in this case its harmony, finds itself compromised without, for all that, improving its persistency or tenacity.

Here are some observations that we have recorded. Let us consider the following products:

Ethylvanillin
Amber musk
Indol
Undecalactone
Patchouli oil
and Vetyver oil

Let us dissolve them one by one, in the proportions of 2% in the following solvents:

Ordinary alcohol
Linalool
Citronnellol
Ethyldiethyleneglycol
Diethyl phthalate
Benzyl benzoate

We shall thus be in possession of six series of solutions each of which includes one of the products of the first group in the various liquids of the second group.

If one excepts the odour of linalool itself and that of citronnellol which will vanish respectively within about 24 hours and 3 days, the experiment proves that out of various "touches" taken at the same period and under the same conditions, the strength of odour varies in the same series, the one of ethylvanillin for example, following and according to the nature of the solvent.

The "touch" having as its origin an alcoholic solution reveals itself definitely stronger at the early stages of its evolution, comparative to those coming

* Perfume Research Laboratories, Descollanges Freres, Lyon, France.

from diethylphthalate and benzyl benzoate for example. These latter will have dominated after several days ageing. That is understood considering the accelerated evaporation of alcohol and of the deposit on the touch of a small quantity of pure odorous body, this latter following its evolution as usual.

Now if one were to examine the "touches" emanating from the two solutions:

Indol in ethyldiethyleneglycol

and Indol in diethylphthalate,

one would see that they have not the same deportment. The former gives off an odour definitely stronger during the first day of its short life; it rapidly weakens afterwards. The second, on the contrary, less violent in the early stage, keeps a basis much more odorous and stronger after three days' evaporation.

The six series mentioned offer beautiful instances concerning fixation. One can note in some cases, with an undisputable clearness (in others with less precision) the action of neutral fixing agents as to odour retention or the importance, in time, of its power of expansion.

Concerning a well-determined odorous product, a fixing agent or not, all takes place as if the intensity and the tenacity, the one depending on the other, were in inverse ratio to each other, so that one can apply the relation:

$$\text{Intensity} \times \text{Persistency} = \text{Constant} \\ (\text{or tenacity})$$

Evidently one must take into account the indefiniteness of the olfactive sense and the impossibility of giving the odour a quantitative valuation. This is why one must not interpret strictly this manner of testing nor must one expect it to offer a systematic precision which indeed it does not claim to have. However by extending or extrapolating the experiments mentioned above and those which are going to follow, it does not seem false to connect between them, as we have just done, the intensity and persistency which define an odour in its ACTIVE FORCE and its POTENTIALITY, independently of its nature and quality.

Indeed, the experiment shows that the more volatile a product is, the less tenacious it is, and that the tenacity increases in inverse ratio to the volatility. Examples: aldehydes, esters, ketones and alcohols in the fatty series where one notes a continuous and progressive fall of odour intensity as the tenacity increases in the hierarchy of the superior homologous bodies; at the limit, round about the compound bodies in C₂₀, the intensity is nil, the body becomes inodorous. An increase of temperature brings out an intensity and makes the odour appear, if there is one, this latter being non perceptible when cold.

The action of heavy solvents, regarding the odour retention is evident only when the dissolved odorous bodies, figure themselves among bodies of high molecular weights. Too big a gap in this matter, too big a difference between the boiling points of the "fixing and fixed substance" system, bring the fixation operation beyond the limits of an olfactive examination.

Instead of considering a perfume or a mixture of two or several bodies, in their evolution at an ordinary temperature, let us examine them at a scale of distillation temperatures, fractioning them off. One knows how difficult it is to obtain pure fractions, free from any traces of the co-associated matters which compose the mixture and this, at the very moment when their boiling points appear far from each other. The mixture of benzene and linalool for example which cannot be easily free from the odour of the former.

The phenomenon of the co-distillation with water

of the molecules belonging to different bodies, at the time of a distillation, is sufficiently known and does not enter into this statement. We have approached it, not to relate a common fact, but to assimilate it, "all things considered," to the olfactive result of a system, a perfume, during the course of its evolution at a temperature which may be the one of the surrounding medium.

The delay in evaporation is neither theoretically nor experimentally a fiction as certain authors give to understand, which reduces to zero or almost zero the effect of fixation. Some more recent observations, which we have recorded about this matter, in operation one the macromolecules of plastics bring to light the "fixing" action of these compounds in regards to odorous bodies.

Here we shall make a digression to say that the perfuming of plastics is a new technique which is spreading more and more every day with the introduction of these in economic life and the increasing need of industry which has only but begun.

Therefore, one must consider, on the one hand, the factors conditioning the structure of the medium proposed and on the other hand the perfume.

1° Let us consider the medium:

- the nature of the monomerics having given off the macromolecules.
- the solubility or insolubility of these matters in organic solvent in general and in essential oils in particular.
- the process of perfuming: aspersion, immersion, incorporation. In the latter case, the temperature of softening and moulding operations.

2° And now the perfume:

- the nature of its components,
- its thermic characteristics,
- its olfactive characteristics,
- the dose used.

To tell the truth, there is no possibility of bringing together in one systematic study, the several facts of the problem, which, besides, would not obey a functional representation.

Through reasoning first and by trial and error after, one can reach worthy results as to the evolution of perfumes in plastics. However, being stated that this study deals with the sole problem of fixation, we notice a strong increase in the tenacity of the perfumes under the conditions herewith exposed.

Let us consider the basis of a carnation and the basis of a rose, composed of normal elements and let us study them in contact with

ordinary Polystyrene

ordinary Polyethylene

1°—**Polystyrene:** This polymeric body from styrolene is fairly soluble in many organic solvents and consequently in most compounds of perfumes. It is possible, in fact it is very easy, when one operates at low temperatures, in water bath for example, to dissolve fairly important quantities, 10% and more. The solution is slow and progressive. The liquid saturated in plastics leaves the excess repose when it has cooled, under its uncrystallized and transparent state. The perfume assumes an aspect all the more viscous as it is rich in polystyrene.

This joining together of perfume and plastic being carried out, let us compare, on paper "touches", and in their final stage, the respective tenacities of a similar basis (carnation or rose) with or without polystyrene. In most cases and chiefly if the experiment is spread over a fairly large number of observations, one is struck by the fact that the resources of polystyrenic

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origin, considering that the sample "touches" have reached or almost reached extinction. If exceptions are noticed, they are in the way of equivalence, in spite of the dilution of the perfume in the plastic matter.

These are observations which tell, not in a constant manner perhaps, but objectively, the possibility of fixation.

Let us note that the study of polystyrene, as we have carried it out, was not intended to look for, in this matter, a new fixing agent, whose characteristics are far from corresponding to the bodies usually employed in perfumery. Similar to natural resins which include, among others, elements of high molecular weight and whose action is justly or legendary praised by modern and old authors, polyesterinic resins have provided us, in this domain, the opportunity of researches not more praiseworthy but not less rational where the role played by macromolecules is concerned.

2°—Polyethylene: This matter drawn from the polymerisation of ethylene is used to-day in the fabrication of numerous domestic objects, notably in artificial flowers.

These matters are noticeable for their insolubility or weak solubility in organic solvents and therefore in perfumes and oils.

The perfuming of artificial flowers intended to give them the attraction of the smell of natural flowers is carried out by various methods:

Aspersation of the perfume on the surface,

Immersion of the flowers in the diluted perfume,

Incorporation of the perfumes in the mass of the substance; this operation is effected during the moulding at the softening temperature, i.e. 180° to 200°.

The first two methods offer no difficulty; as to the third, much more efficient where odour persistency is concerned, it shows need to take into account the temperature which the perfume will have support and the changes and modifications which will result from this operation:

—vaporisation of the most volatile elements,

—possible inter-reactions between the elements at this temperature,

—cyclisation of certain terpenic elements,

—denaturation of the perfume and obtaining of an olfactive result different, in quality and quantity, from the one primarily used.

No doubt in the use of this third method one had better take steady perfumes resisting better to so important differences of temperature. Fortunately among the products used be they essential oils or chemical bodies, many fulfil the required conditions and allow in the end a satisfactory odour evolution.

The most remarkable fact resulting from the perfuming of polyethylenes is the longevity of odour in its resistance to extinction. One may say that these substances would serve as excellent supports for perfumes.

Artificial plastic roses and carnations, which we perfumed according to the dose of 0.5 g per 1 kg of substance, still conserve after eight months' ageing a pleasant reminder of the perfumes which were used to give them the odour. Compared with artificial flowers thus perfumed, no other matter to our knowledge, wool, cotton, fur, paper etc. offers such a fixing power. After their perfuming, these other substances lose, in a relatively short time, all trace of smell. The fading away is absolute. And, which is most remarkable, if one washes the perfumed polyethylenes with alcohol, which should on principle eliminate the odour, this latter does not disappear at all, at the worst it may be slightly weakened.

We have also prepared discs of polyethylene moulded at a softening temperature and perfumed by means of different basis conceived specially for this use.

After leaving them for a certain time we washed them in alcohol several times and kept them in this liquid, for three days. On taking them out of the bath we have again washed them with alcohol before putting them under observation.

Now, these incorporated perfumes were but feebly touched and the discs thus treated still continue to remain noticeably odorous to-day, four months after the operation.

We think that the marriage of perfume and plastics has led us effectively to odour retention in time beyond the limits we could even hope for. But a problem arises: isn't it a question of accumulation of storage of perfume incorporated in the mass of the matter, this latter being permeable to air allows the continual liberation of odorous molecules into the atmosphere?

This is a hypothesis to which we shall return later when we have enough substance of discussion and observation.

Nevertheless it seems to us the interest of the question being thus that the perfuming of plastics will have an increasing development. The industry of perfume and the one of plastics will draw profit from it everywhere where the presence of an agreeable smell is needed.

Let us add that plastics of a cellulosic and vinylic nature give more or less parallel results; to remain within the limits of this study, we leave aside the observations which concern them.

What conclusions must we draw from the results exposed in the previous pages and which concern apparently two different subjects:

The fixing of perfumes and the perfuming of plastics which subjects go together nevertheless in spirit and in practice.

1° It seems that the fixing power of a solvent remains connected to its boiling point, in all cases, rather high, its vapour tension being weak.

This manner of seeing is physically conceivable and is verified especially when the fixing agents chosen possess a high molecular weight.

2° The idea of fixing a perfume is only plausible where it concerns substances noticeable for their tenacity. We do not possess the means, as we said at the beginning of the study to retain the odour of volatile bodies. If the evaporation is found to be somewhat delayed, by mixing, this delay of short length is negligible and does not answer the idea of fixing as it is conceived in perfumery.

3° To believe in the superiority of a perfume because it is saturated in a fixing agent, is an illusion. The strength of a perfume in its last stages is not necessarily insured by an excess of musk or coumarine, vetiver oil or santal which is best not detected in the background.

What is important in the whole system that, without claiming to remain odorous for ever, must obey certain rules without which there is no successful realisation.

4° The dissolution of polystyrenic type macromolecular elements in perfumes seems in restricted limits to increase odour persistency.

5° The incorporation of odorous bodies and properly chosen aromas in polyethylenes allow the obtaining of odour sources of remarkable longevity, susceptible, in the near future to make a brilliant industrial career.

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Milk and Honey

HERBERT JANOWITZ

It will be quite a task to convince women that, what has for 40 years been preached as the best care for the skin, namely greasy creams, is after all not the right way.

But, this is exactly the trend modern cosmetology seems to be adopting.

In this connection it might be pointed out that, the qualities of the "Nivea" type cream—already for years very popular in Europe (the healthy mass intuitiveness, no doubt, being behind this selection)—is now also gaining recognition in America, where until recently it has been rejected as inadequate in lubricant content.

Perdigon, in his article about Marine Plasma Cream, published in 1948, dealing with the hydration process inherent to the skin cells, determines that, although some fat is essential for keeping supple the outer layers of the epidermis—which perpetually tends to turn dry, brittle and scaly—water and water-soluble ingredients (chiefly Na Cl and Glucose) are needed as nourishment for the deeper layers (Stratum Lucidum and Stratum Granulosum). Normal hydration is achieved when the osmotic pressure of the submerged and surface cell liquids are balanced. Perdigon proposes a cream containing 65% Quintons Plasma, a solution of one part sea water to three parts fresh water.

It is evident from scanning the latest American advertisements "Brings moisture from the air to your skin," and a whole series of similar slogans, that the new method is the correct one.

The question now confronting us is, what can be done in the way of supplying real nourishment to the skin? In developing a genuine "skin-food"?

Lately a number of articles have appeared on the theme of Biochemistry of the Sebum; for example the article by Wheatly, asserting that the mass of it consists largely of Triglycerides, and free and bound unsaturated fatty acids. The cholesterol, squalen, vitamin D and E content is also of interest, and can serve as a basis of the fat contents.

For the watery phase—comprising 65-70% of the cream—which should penetrate deeply, there exist a series of nutrients which can be infused into the cells through the water.

The degree to which vitamin B, and the entire range of the B complex, is absorbed by the skin is unfamiliar to me, but, to Messrs. Hoffmann-La Roche, with their practical experience as producers of the hair lotion Pan-teen, some effects must surely have been apparent, inasmuch as said lotion contains at least Pantothenic acid.

Furthermore, a whole range of water soluble placenta extracts, and, especially biostimulene extracts, have recently appeared on the market, which on the main are Filatov extracts, widely used and disputed in medicine. A recent publication by Rivera deals with biostimulants in fruit.

Gellé Royale, should not be overlooked here, as all the

above characteristics (vitamin B and E, as well as phytostimulant) should after all be inherent in same.

If we revert now to the starting point of this article, namely, Na Cl and Glucose as cell nutrients, there arises the question: Why not replace Glucose with genuine honey? Medicine has for a long time treated wounds with ointments containing honey which has small amounts of Gellé Royale in it. They further contain also some elements of vitamin B complex and amino acids. Quite advantageously the p H value is on acid side, thus protecting the acid mantle of the skin. In many respects it shows a marked similarity to another raw material, with which I personally have launched some tests, meaning simple whey.

When skimmed milk turns sour, the casein is drained off, the then remaining liquid heated to 90° C, the residue casein and proteins coagulate, and the then resulting liquid is filtered, a product rich in lactose, vitamin B and amino acids emerges. The p H value is between 4 and 5.

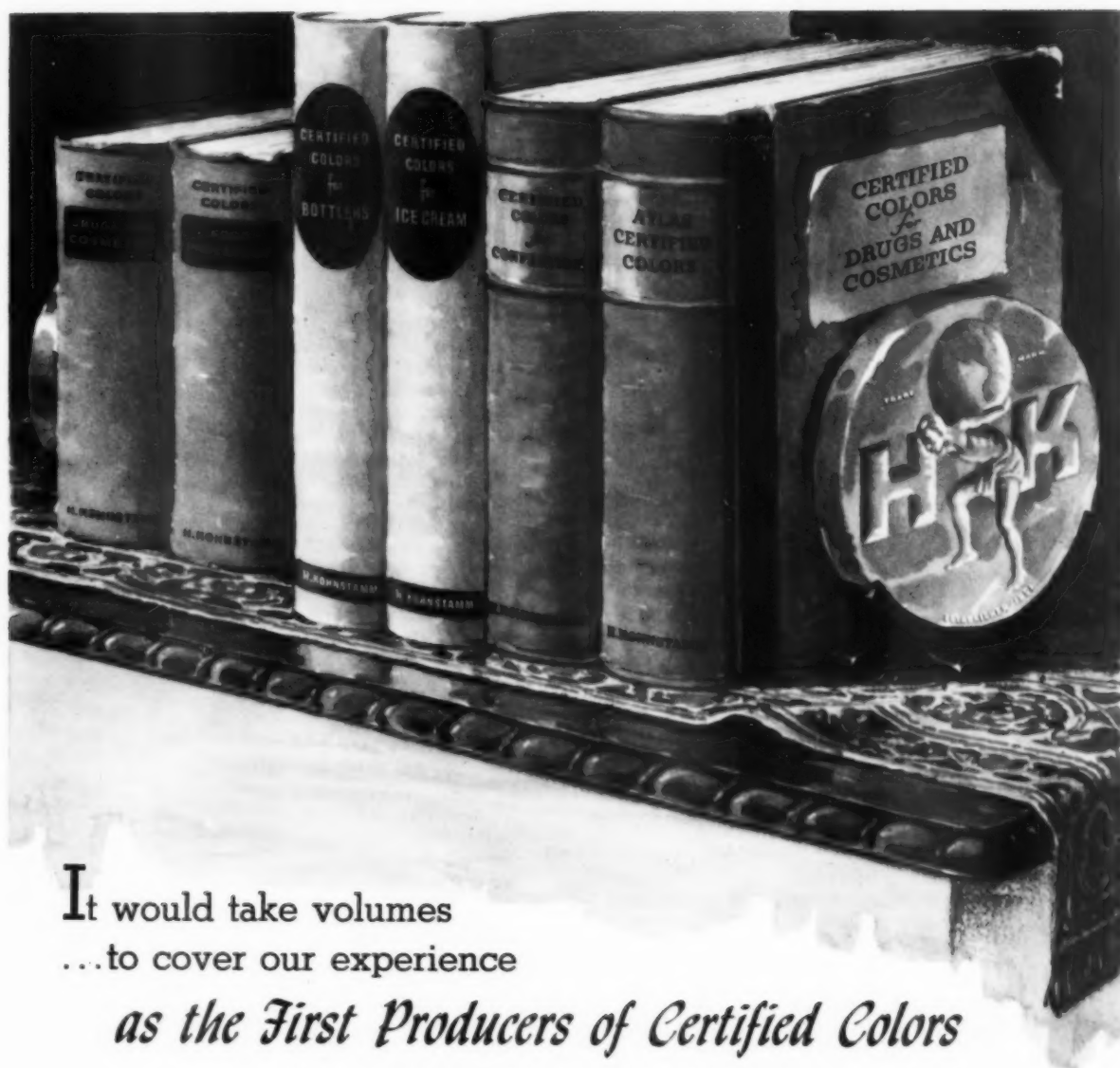
The content of pantothenic acid, nicotinamide, and other parts of the vitamin B complex is considerable (U. S. Patent 2,052,218 1932 describes the methods of deriving vitamin B from whey).

Whey further embodies aminoacids, tryptophane, methionin and cystin. I should like at this juncture to recall an article of mine, which appeared in the "American Perfumer" in 1956, under the caption "A blood product for aging skin," mentioning tryptophane as a starting source for 5 oxytryptamine, which produces a restorative effect on the aging skin. The lactose of this whey may serve as a substitute for the above mentioned glucose, although comprising only 2%, and will probably have to be fortified by glucose or honey. The benign effect of lactic acid on the skin is an acknowledged fact, besides there are to be found in it marked quantities of element traces, especially of metals, sulphur and phosphores.

A German factory has patented a formula for a face mask containing whey.

On summing up, it can be said that, if the skin has been nourished with water, better nutrition is achieved through the ingredients added to the water, than through fats. Fat creams, as is known, consist partly of mineral fats, which lubricate only the keratinized uppermost layer of the skin, similar to the lubrication of a machine. This means it stays only on the outer surface of the epidermis. If pure animal or vegetable fats alone were used, they would, of course, penetrate immediately into the skin, but would in this manner produce only a sensation of dryness on the skin.

Last year the United States hit one of its greatest peaks of prosperity and that was the year when the charitable organization Volunteers of America hit a new peak in giving aid. Two and a half million people received its help—the greatest number in 61 years.—Gen. Charles B. Booth.



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Chemical Additive Amendments Weighed by Bar Association

The controversial problem of additives in foods and cosmetics was considered at the meeting of the Food, Drug & Cosmetic Law Section of the New York State Bar Assn. January 29-February 1. Dr. Bernard L. Oser of the Food & Drug Research Laboratories discussed the food additive amendment and Stephen L. Mayham, executive vice president of the Toilet Goods Assn. discussed the cosmetic additive amendment.

After analyzing the various bills on additives before Congress Dr. Oser pointed out that the question of control over useful food additives revolves around whether the control shall be limited to the issue of safety or shall include also an evaluation of usefulness. If the FDA would define its terms more specifically, Dr. Oser felt, the present roadblock would be removed. What are needed are:

1. A comprehensive statement of acceptable functional values which might serve as the basis for regulations for the administration of a food additives amendment.

2. A substitute for the per se terminology in H.R. 6747 whereby substances "not poisonous or deleterious" are exempted from consideration of functional value. The latter should be limited only to such substances as require the establishment of maximum tolerances.

3. Finally, a clear understanding that rejection of a proposed food additive would not be based merely on its alleged lack of functional value, but on considerations related to safety for use under conditions of use.

The chances of any cosmetic additive legislation at the present session of Congress, Mr. Mayham stated in his excellent paper on the Cosmetic Additive Amendment, seems remote. In briefly analyzing the significant parts of the more important bills Mr. Mayham pointed out various flaws which would put an unnecessary burden on manufacturers. As to pre-testing he said "No one has said that new ingredients should not be tested but almost everyone has asked to be freed from the burden of testing. It is the position of The Toilet Goods Association that pre-testing of new ingredients is both necessary and desirable. In fact, such testing has been going on for years. It is not a new thing. No cosmetic manufacturer in his right senses will stake the reputation of his products and his company on ingredients that have not been proven to be safe in use, and I would think that no ingredient manufacturer would wish to purvey a new ingredient for application to the human body unless he knew it could be used with complete safety. . . . Two further provisions might be mentioned. First, the Administration would be compelled to publish at an early date a list of the materials which it considers safe for use and that list may be expected to contain the names of almost all of the ingredients currently used in the manufacture of cosmetics. Second, the Administration is expressly forbidden to inquire into the efficacy of any ingredient. Bear in mind that the final products are not drugs, nor even foods, and while you may have some doubts of the efficacy of cosmetics for all the things claimed for them, this law is not the place where control of such claims is or should be placed.

"Finally, there are adequate provisions for review of the rulings or decisions of the Administration, to the Circuit Court of Appeals, which would have to decide

the case on the preponderance of evidence, not merely on substantial evidence. There is no provision for mandamus under the Declaratory Judgement Act, a procedure which in our opinion is unworkable. Courts are notoriously loathe to use this method of compulsion on independent administrative bodies. Nor is there any provision for *ad hoc* committees of the National Academy of Sciences or any other body. This procedure may be applicable to foods or drugs, I would not know. But I know of no one who is prejudiced against foods and very few people who are prejudiced against drugs. Unfortunately for them, I do know of some persons, even of high scientific attainments, who are prejudiced against cosmetics. We prefer to let the Administration decide our fate on ingredients rather than to take the advice in advance of a committee of which we do not know the make up. Furthermore, the additional cost of *ad hoc* committees, in duplication of time and expense, would not be offset by any conceivable advantage in such procedures.

"This briefly is the present Williams Bill, which, with the safeguarding amendments with respect to secrecy, suggested above, we believe to be a good and workable measure, even while we continue to believe that no cosmetic amendments are necessary and that the present law has been adequately protective of the public interest. In this we are fortified by the record which shows only a handful of cases on cosmetics covering both adulteration and misbranding of these products in the twenty years since the present law went into effect. In any event, we anticipate no cosmetic legislation this year and if that should be the case, no one is going to be damaged by the omission."

In discussing the certification of colors Mr. Mayham said in part:

These measures provide for the certification of "colors," not merely *coal-tar* colors as is provided in the present law. They provide that certification of such colors be on the basis of harmlessness in use and not "harmlessness per se." They provide for the *separate* listing of colors for foods and for drugs and for cosmetics so that a dye found harmful for one group of products need not be classed as harmful for the others. They would give the Administration authority to establish both areas of use of such colors, immensely important in the cosmetic industry, and quantity limitations in various products so that percentages of safe use may be established by the Administration. They further provide that the Administration, where public health is not involved, may completely exempt any colors it may care to from the certification provisions.

"These amendments should be put through at once. They are more important to the affected industries and to the public protection than are the cosmetic ingredients bills or even the controversial food additive bills."

Nine other papers were considered on various topics more or less remote from the cosmetic industry. Charles Wesley Dunn presided as chairman; and one of the unlooked for features on the program was a tribute to Hugh Craig, editor of the Oil, Paint & Drug Reporter for his useful and understanding work on behalf of sound legislation for many years.

The Volatile Flavors of Strawberry*

K. P. DIMICK AND JOSEPH CORSE

Interest in the volatile flavor constituents of strawberries reflects the need for objective methods of assaying flavors. In the large scale fruit-breeding programs underway, in the determination of maturity, and especially in processing and in the post-processing history of fruits, we must know what causes the characteristic flavor and the chemical changes that occur which affect flavor. The volatile strawberry-flavor problem, and indeed most fruit-flavor problems, are difficult in that the flavor is an exceedingly complex mixture of chemicals in very dilute solution. Further, these organic chemical compounds responsible for the strawberry fresh-fruit flavor vary greatly in their amounts, their volatilities, and their flavor intensities.

In order to start on the problem, it is necessary to separate the responsible chemicals from the great amount of contaminating water, fruit solids, and the bulk of volatile insipid organic material. Two methods have been used in strawberry-flavor research: extraction and distillation. The classic work on volatile strawberry constituents was done by Coppens and Hoejenbos about 1930 (1). They extracted 445 kg. of strawberry juice (Scarlet variety) with ether in a continuous extractor, distilled off most of the ether, removed acidic materials with sodium carbonate solution, and dried the remaining ether solution. After concentration there was left 86 g. of a neutral oil grossly contaminated with non-volatile waxes. They finally obtained a volatile fraction which was distilled at various pressures. Unfortunately, no mention was made of the type of distillation apparatus used, but considering the time and place, it must have been of very low plate efficiency. Nevertheless, by repeated careful distillations, the use of qualitative tests, and the preparation of derivatives, Coppens and Hoejenbos were able to identify a number of components and to have reasonable approximations or educated guesses as to others (table 1). A mixture of these materials, however, certainly does not have the characteristic odor of strawberries.

Table 1.

Volatile flavor components from "scarlet" strawberry (1)

Acetic Acid	Ethyl or Methyl Caproate
n-Caproic Acid	Ester of Butyric Acid
Cinnamic Acid	n-Hexanol
Ethanol	dl- α -Terpineol
Ethyl Acetate	l-Borneol
Isoamyl Alcohol	Terpin

In order to avoid the initial extraction of non-volatiles which caused Coppens and Hoejenbos considerable trouble, work at the Western Utilization Research Branch has been based on distillation techniques fol-

lowed by extraction. About half the weight of berries was collected as water solution from strawberry puree in a vacuum flash evaporator or from whole berries in vacuum-pan jam manufacture. These aqueous solutions were further concentrated in a stripping operation to about 60-fold.^b This sort of low plate-efficiency process cannot be carried very far, because the high-boiling materials form azeotropes which boil very close to 100° C. and pass off with the water. For further concentration, a high-plate efficiency, continuous feed distillation column was designed and used (2, 3, 4). It thus was possible to obtain concentrates above 600-fold wherein there was no observable damage to flavor. This concentrate (A) was used for analysis of various components (fig. 1). Most of the material, however, was subjected to further distillation. The low-boiling (to 85° C.) fraction (B) was collected and the rest distilled as azeotropes. The high-boiling azeotropic solution then was extracted with isopentane in a continuous extractor to yield, after working up, a water-insoluble oil (C) bearing the characteristic fresh-strawberry flavor. The amounts of this oil varied from 1 to 7.5 p.p.m. of original strawberry. Under these conditions of preparation, it contained about one-third free fatty acids and actually represented less than 10 percent of the volatile carbonaceous substances. Investigations of concentrates (A) and (B) above have led to the identifications given in table 2.

Table 2. Analysis of fresh Marshall strawberries

Description	P. P. M. in original puree
Essence (as carbon)	42.0
Acetaldehyde	4.9
2-Hexenal	7.2
Acetone	2.7
Biacetyl	0.21
Ethanol	45.5
Methanol	4.7
Esters (calc. as ethyl acetate)	9.4
Water insoluble oil	7.5
Free fatty acids	3.00
n-Caproic	1.5
n-Valeric	0.8
n-Butyric-Isobutyric	0.52
Acetic	0.12

^bThe word "fold" as used here means essentially the extent of concentration. For example, it would take 2,000 g. of puree to make 1 g. of a 2,000-fold concentrate.

*Presented at the Symposium on Chemistry of Natural Food Flavors by Dr. Corse. The Symposium was sponsored by the National Academy of Sciences, National Research Council for the Quartermaster Food and Container Institute for the Armed Forces and Pioneering Research Division, Quartermaster Research and Engineering Center, Natick, Mass. Symposium held in Washington, May, 1957.

continued on page 48

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Except for the free fatty acids in the oil (C), this fraction was almost intractable. Attempts to distill it under reduced pressure in a low-holdup spinning band column were abortive. Visible deterioration occurred in reaching equilibrium, which required at least 2 hours, and the distillation was discontinued because of extensive decomposition after 7 or 8 hours. The odor of the

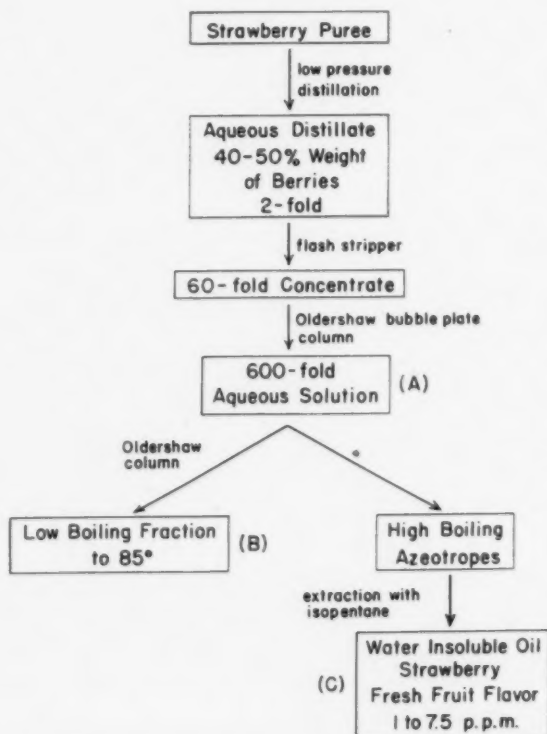


Figure 1. Concentration procedure for low boiling fraction (B) and the oil flavor fraction (C).

distillate, although pleasant, was not especially reminiscent of strawberries, and the residue was acid.

The development of gas-liquid partition chromatography (GLPC) by James and Martin (6), and the successful use of thermal conductivity (7) for detecting the fractions as they leave the apparatus led us to adopt this powerful tool in the investigation of the essential oil from strawberries (7). In GLPC a column is packed with a stationary phase of size-graded solid particles wet with a liquid of low vapor pressure. The components of a mixture placed on the column are eluted by a means of a gas, and separation occurs as a result of differences in vapor pressures over the liquid phase. The components of a mixture placed on the column are eluted by a means of a gas, and separation occurs as a result of differences in vapor pressures over the liquid phase. The thermal conductivity cell detects contaminants in the effluent gas, and their presence may be plotted on a recording potentiometer as they emerge from the column (fig. 2).

Gas chromatography represents a superlative method of separating small amounts of volatile materials. Separations may be accomplished in 10 minutes on a 4 mg. sample and, by means of a special collecting device, near quantitative recoveries were made of materials boiling as low as 27° C. (80.6° F.). The pen recorder provides a permanent record of the emergence of each substance in the form of a peak whose area is proportional to the molar quantity of the substance. In a

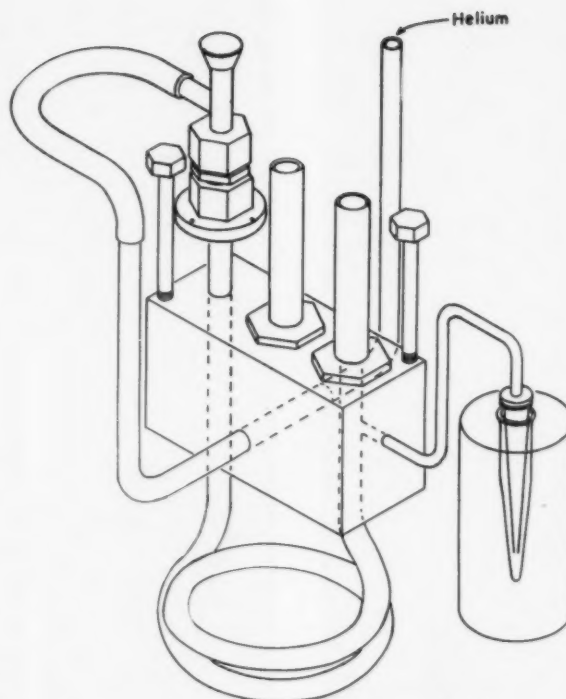


Figure 2. Isometric drawing of assembled GLPC Unit.

homologous series, the logarithm of the time for a peak to appear (retention time) is proportional to the boiling point. Thus, a close estimate of the boiling point of an unknown may be made from the calibration curves of known materials.

The resolving power of this apparatus is very high. Using an 11-foot column, 1/4 inch in diameter, packed with a Celite-silicone-stearic acid mixture, James and Martin estimated the efficiency of the column at approximately 2,000 theoretical plates. In addition to its speed and phenomenal plate efficiency, this method of separating volatile substances has a great advantage over distillation in that the type of stationary phase may be changed by packing a new column. This, in effect, gives a situation analogous to 2-dimensional paper chromatography. The two liquids, water and methanol, appear

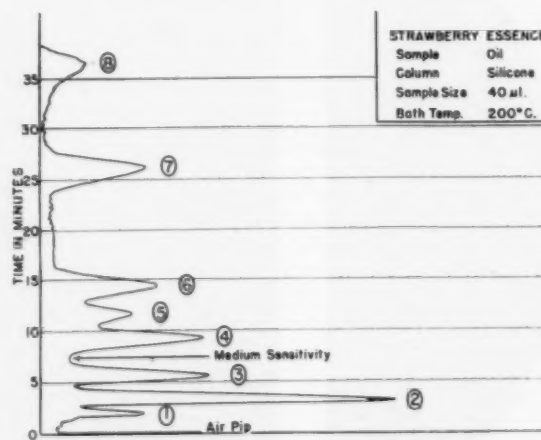



Figure 3. Eight major fractions S-1 to S-8 separated from strawberry oil by GLPC.

continued on page 53



Muted Melody by



"Heard melodies are sweet, but those unheard are sweeter". . .

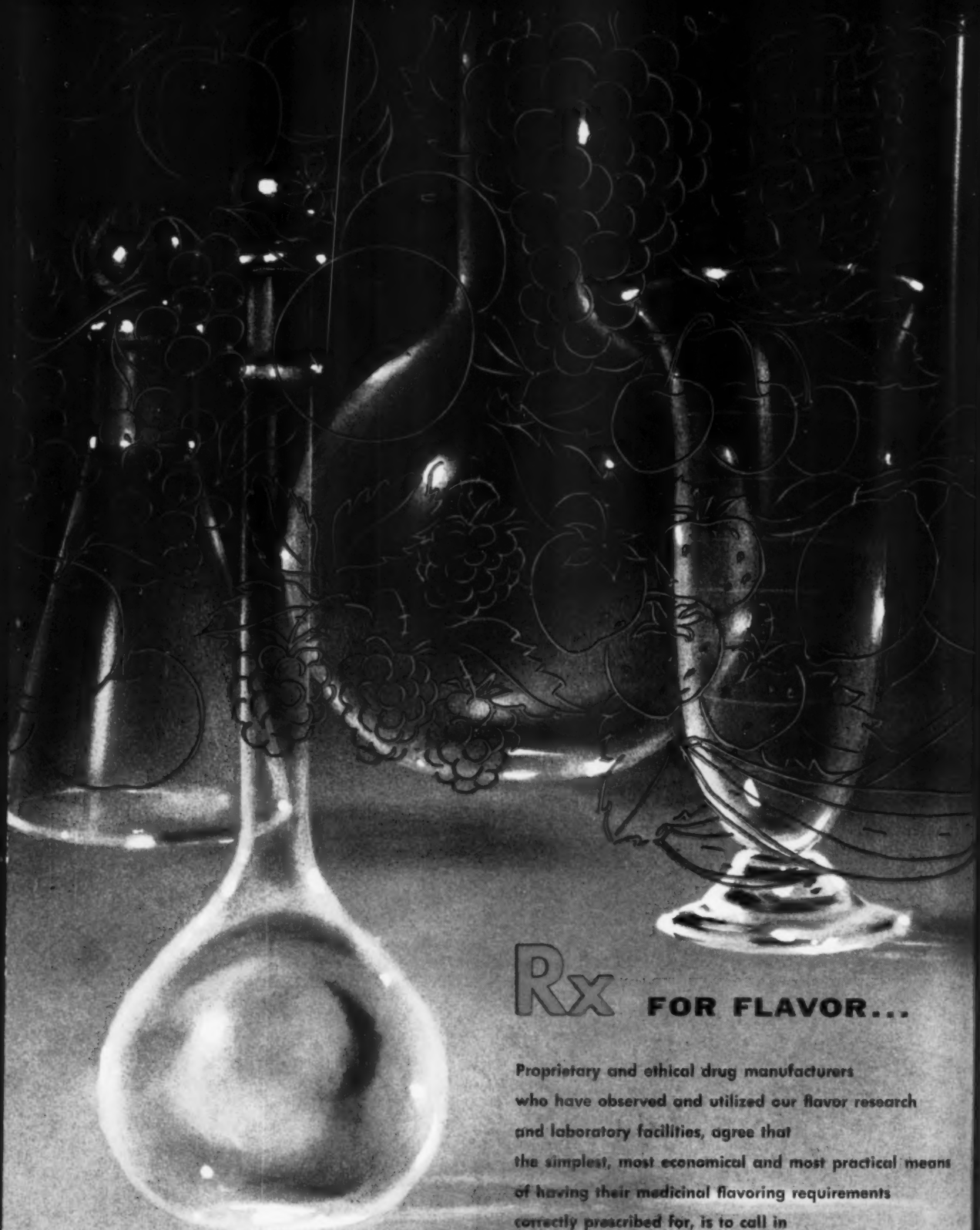
so wrote the bard. In MUTED MELODY the key is soft and low . . . restrained — a beautiful fragrance, but one that weaves its spell by quiet understatement rather than by blatancy. Refreshingly sweet and lasting, this newest FRITZSCHE "EXCLUSIVE" is basically a spice and woody-tinted bouquet combined with lily of the valley, jasmine, rose and ylang, with a citrus, aldehydic and exquisitely appealing fruity top note. Also, by the fine application of selected animal fixatives, MUTED MELODY has been made rich, mellow, harmonious . . . and discreetly provocative. Your sample request will provide you a proper introduction to this heart-warming new fragrance . . . this ideal perfume for extracts, colognes and cosmetics . . .

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as a single substance when subjected to separation on a silicone column, but when placed on a Carbowax column, this mixture was separated cleanly.

A further point should be emphasized: materials of different types, such as alcohol and esters, may be separated readily, although their boiling points are almost identical. For example, ethanol and ethyl acetate are separated on either the silicone or the Carbowax column, while their boiling points differ by approximately 1°. Another distinct advantage of the method is the absence of any tendency to form azeotropes.

A sample of strawberry oil, injected into a 10-foot silicone column operating at a temperature of 200° C., with a helium flow rate of 42 ml/min., gave a serrated curve (fig. 3) indicating an extremely complicated mixture. Eight arbitrary fractions were collected, and the lower boiling ones were re-run at a lower temperature and further collections again made (fig. 4).

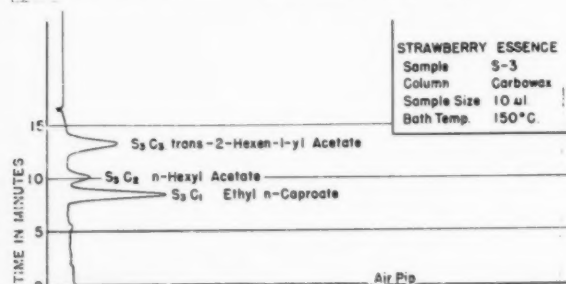


Figure 4. Fractions S-1, S-2, and S-3 re-chromatographed at 150° C.

None of these silicone fractions appeared to be homogeneous. When S-1, the first silicone fraction, was re-run on a Carbowax column, a striking result was obtained, as shown in figure 5. Peak 13, the largest,

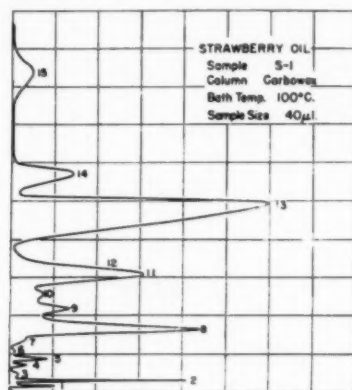


Figure 5. Fraction S-1 chromatographed on a carbowax column.

was identified chemically and physically as isoamyl alcohol. The quantities of most of the other substances precludes their identification by chemical means, and mass spectra are being run for this purpose.

The second silicone peak, S-2, likewise was shown to be a complex mixture when run on a Carbowax column (fig. 6). The two major components are *n*-hexanol (S-2, C-7), previously found by Coppens and Hoejenbos, and *trans*-2-hexene-1-ol (S-2, C-8). This latter alcohol has not been reported previously as a natural product, although both *cis* and *trans*-3-hexene-1-ols do occur in nature. *Trans*-2-hexene-1-ol has a remarkably pleasant odor, reminiscent of green apples. The occurrence of *trans*-2-hexene-1-ol and *trans*-2-hexenal, are, of course,

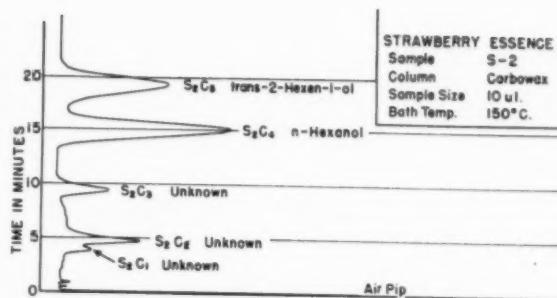


Figure 6. Fraction S-2 chromatographed on a carbowax column.

related, but in an unusual manner. If berries are frozen or heated prior to being pureed, no *trans*-2-hexenal is found. However, fresh crushed berries do yield large quantities. We believe *trans*-2-hexenal to be an artifact. Its formation can be explained if heat or freezing disrupts the mitochondria in such a manner that the normal dehydrogenase activity necessary to form the aldehyde from the alcohol is destroyed.

The third silicone peak, S-3, is resolved into many compounds on Carbowax columns (fig. 7). So far ethyl caproate (S-3, C-4), *n*-hexyl acetate (S-3, C-5), and *trans*-2-hexene-1-yl acetate (S-3, C-6) have been identified. The hexenyl acetate, probably the most pleasantly fruity component in the oil, has not been reported as naturally occurring.

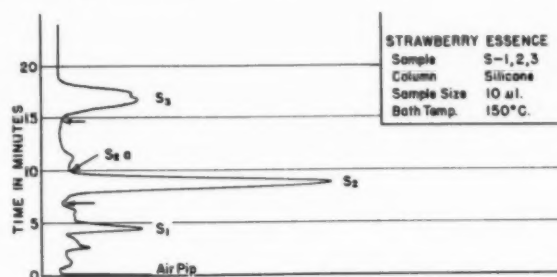


Figure 7. Fraction S-3 chromatographed on a carbowax column.

The last peak on the original silicone columns, S-8, contains about half ethyl cinnamate (table 3). This is a small peak and, like the others, a mixture. Much work remains to be done to identify the many unknown com-

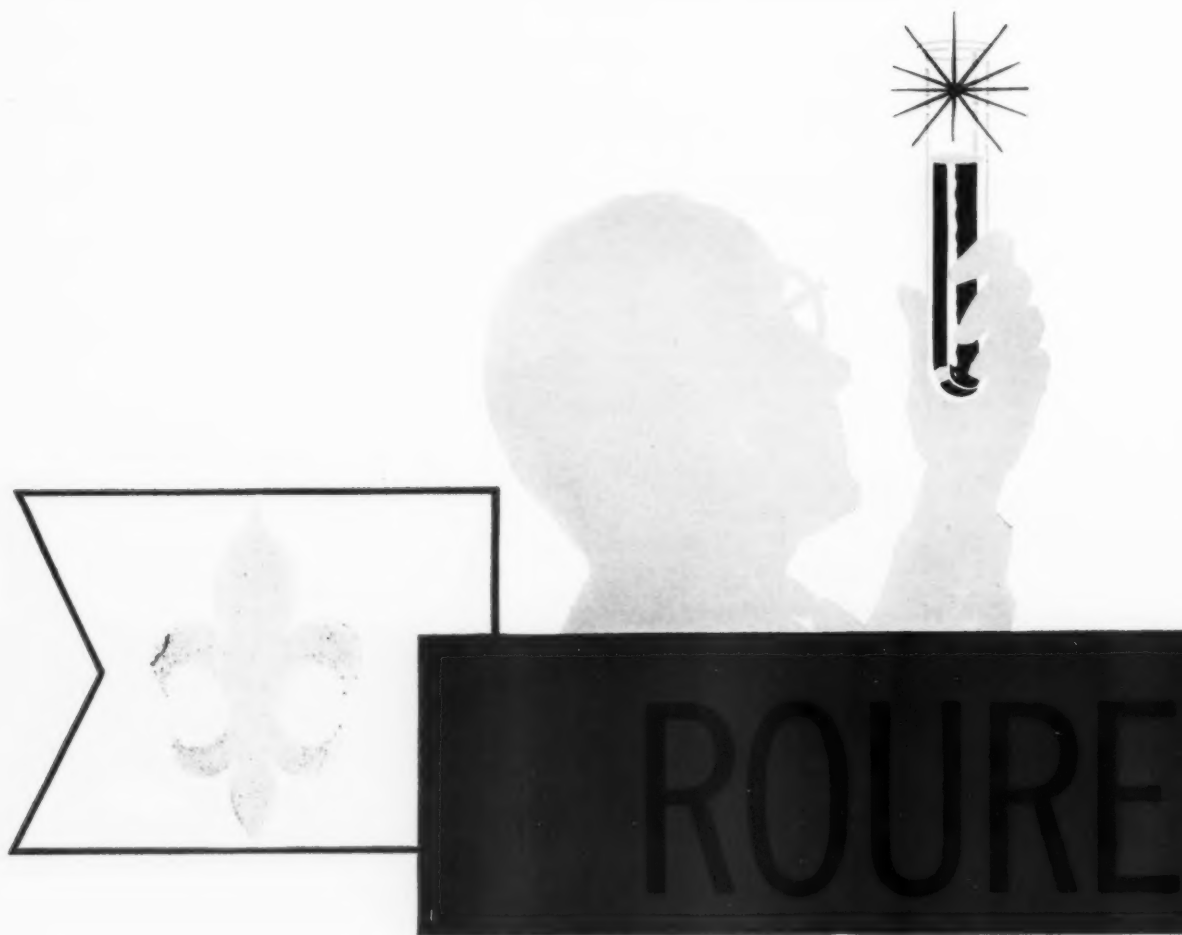
Table 3. Partial composition of water-insoluble oil (strawberry fresh-fruit flavor)

Isoamyl Alcohol	<i>n</i> -Hexyl Acetate
<i>trans</i> -2-Hexene-1-ol	Ethyl Caproate
<i>n</i> -Hexanol	Ethyl Cinnamate
<i>trans</i> -2-Hexen-1-yl Acetate	(<i>trans</i> -2-Hexenal)

ponents which in total represent less than 20 percent of the strawberry fresh fruit flavor. Although any one of these is quite minor in relation to the whole, the presence of a number of them is necessary for the characteristic aroma.

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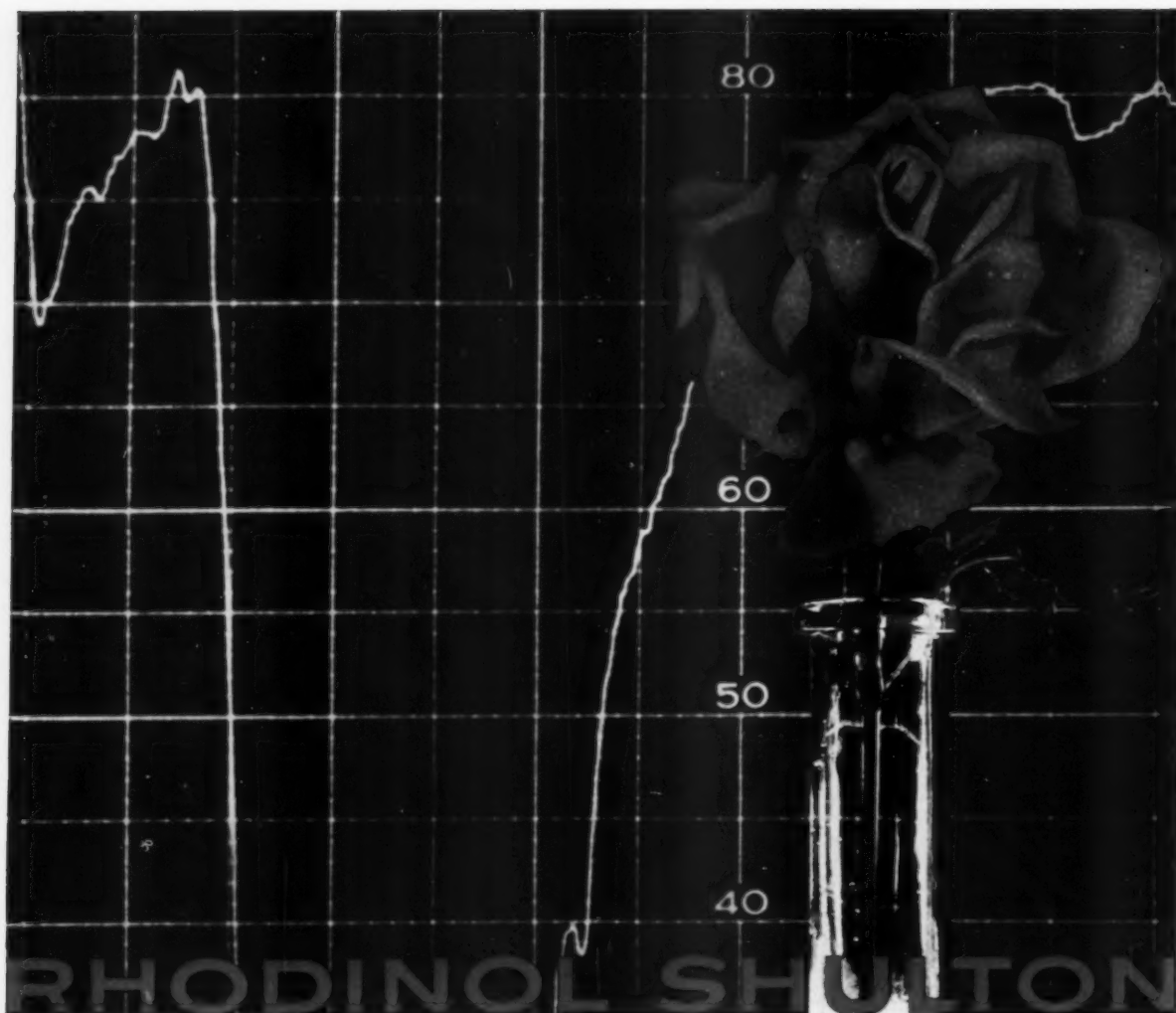
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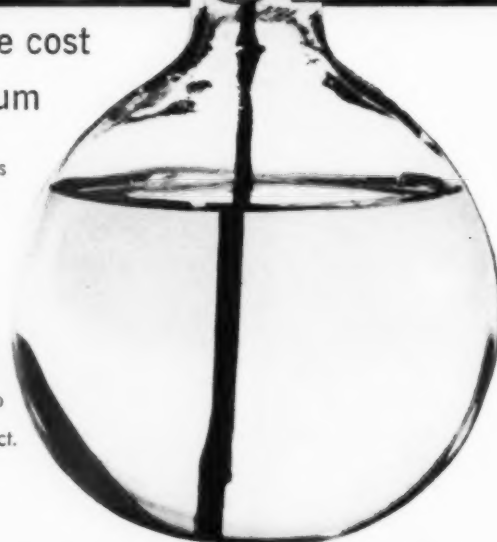
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PRODUCTS & IDEAS

SCREW-CAP FLASKS

Screw-cap Erlenmeyer flasks are now available for the first time to the laboratory professions. Manufactured from heat-resistant glass



and trade marked Kimax, these flasks are introduced as a regular stock item by Kimble Glass Co.

Available in four sizes, 125, 250, 500 and 1,000 ml sizes, the flasks are fitted with a black plastic screw-cap containing a sealed-in rubber composition liner. Because the new flask provides a means for keeping solutions and media both air and vapor-tight, it has important uses in chemical and biological laboratories.

ATOM MODELS

Ten new atomic models for con-

structing organic metal chelate compounds have been added to the thirty different atom models previously available from Arthur S. LaPine and Co. Four models are available to represent the central metal atom in chelate compounds since two configurations (planar or octahedral) and two bonding types (covalent or ionic) are possible. Six other models have been introduced for the construction of metal chelate compounds: a carbon C-H bridge model; two types of tetravalent, unsaturated nitrogen bridge models; a tetravalent, tetrahedral nitrogen for aliphatic linkages; a trivalent ring oxygen model; and a monovalent oxygen for hydrogen bridges.

DISPENSING DEVICE—1

A unique and simple fluid dispensing device has recently made its appearance. As shown in the illustration, it consists of a single unit composed of two molded polyethylene parts and a stainless steel spring. These parts are the main plug and the inner plug spout. The main plug has a slot in the bottom which functions for both the air intake and return of excess drops into the bottle. The fluid emission hole in the spout can be made in several diameters, so that the fluid can be dispensed in drops or continuous flow as desired. Standard bottles and standard screw closures are

used. When the closure is unscrewed, the inner plug spout emerges due to the spring action. Automatic insertion of unit in bottle neck is made through the use of conventional bottle corking machines. Modifications of the present design make possible the dispensing of a predetermined and fixed amount of fluid. Samples are available from the Park Plastics Co.

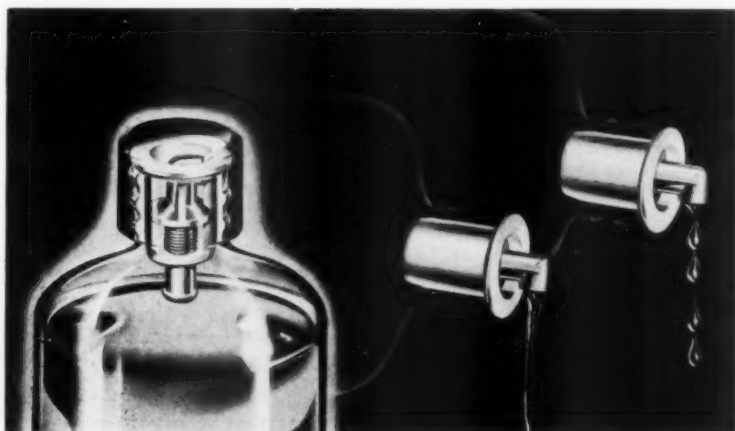
LABORATORY MILL—2

A new high speed three-roller mill for laboratory or pilot scale use, developed by Charles Ross & Son Co., is an exact replica of the larger Ross Roller Mills. This new mill, the Ross #52LC 4½ x 10", is reported to be easily converted to either fixed center roll operation or floating center roll operation with simplified two point control. This mill features a one-piece cast frame, helical cut gears, oversized roller bearings and all other construction details of the larger production mills. Two-speed motor and stainless steel construction of rolls and apron are furnished for special applications.

2.



1.



More Steam Needed To Boost Soap and Detergent Sales

Soap and detergent manufacturers must put more steam into their sales machinery if they want to keep pace with the expanding economy of the country. Arno H. Johnson, economist for the J. Walter Thompson Co. told the members of the American Soap & Glycerine Producers at its meeting January 22-24 in the Waldorf Astoria hotel, New York.

After pointing out that changes in markets and population have taken place he said:

"Had families changed their soap consumption habits as rapidly as they moved up in income, had they taken on the physical consumption habits of the income group into which they moved, the tonnage consumption of soaps and detergents should have increased 23% between 1950 and 1956 or twice as much as the actual reported increase of 11%. At current prices, the dollar sales of the industry should have increased 48% instead of the reported 33% increase in those six years."

Reiterating his often-stated contention that total sales must be increased 50% within the next ten years to keep pace with increasing production, Mr. Johnson pointed out that "by 1968 our total production of goods and services in the

U.S. should grow to over \$650 billion in terms of 1957 prices compared with \$436 billion in 1957." And he added that \$650 billion by 1968 is "a conservative measure."

"With the increased share of the consumers' income in the form of discretionary spending power, competition for the consumers' choice is broadened. It goes beyond just brand vs. brand or competing services within a classification. It will include competition between whole product classes or with entirely different interests and services, such as travel."

The theme of the convention was "The Acceleration of Change" in population and markets, in buying attitudes, in management methods and in world affairs. The attendance was around 400 and the heavy program was carried on through division meetings—fatty acids, glycerine and industrial soaps—as well as in the general meeting.

President E. B. Osborn gave a well considered report on the activities of the association in 1957. For the first time a West Coast soap manufacturer was elected president of the association. He is Andrew K. Forthmann, president of the Los Angeles Soap Co. He is a lawyer turned soapmaker.

S. C. C. Plans European Tour to Five Nations Sept. 5-24

The Society of Cosmetic Chemists is to sponsor a European tour to Italy, Germany, Denmark, Holland and Belgium September 5-24. The trip will include attendance at the first technical meeting of the newly formed S. C. C. of Germany. Another International Congress of Cosmetic Chemists will also be attended in Germany. Members of the S. C. C., their families and friends are invited to go on the tour. The cost is tax deductible.

Rutgers Report Illustrates Noses that Went to College

The January issue of the Report from Rutgers, the New Jersey state university, showed a photograph of Dr. Donald B. Denney of the Rutgers School of Chemistry and S. J. D'Andrea vice president of Alpine Aromatics one of his students in Perfumery and Essential Oils sniffing the formula for synthetically prepared linalool, a perfume base unobtainable naturally.

Effect of Emulsifying Agents told to New York S. C. C.

Dr. Paul Becker, project leader in surface chemistry at the Central Research Laboratory, Atlas Powder Co. and author

of the recently published ACS monograph "Emulsions: Theory and Practice" addressed a large and appreciative audience of chemists at the February 5 meeting of the New York Chapter of the Society of Cosmetic Chemists. His subject was "The Effect of the Nature of the Emulsifying Agent on Emulsion Inversion."

He presented the results of an investigation which showed that the type and concentration of the emulsifying agent is significant in determining the precise phase concentration at which inversion occurs. The classical theories of emulsion inversion relating to phase volume concentration at which inversion occurs to purely geometrical considerations have thus to be explored.

Elizabeth Arden Launches New Creme Extraordinaire

Elizabeth Arden has launched her new Creme Extraordinaire which is stated to do the work of three creams by smoothing and moisturizing the skin, nourishing it and at the same time neutralizing any tendency to over acidity. The creme was two years in the research stage. The new creme made its appearance in selected stores February 1. Prices range from \$1.50 for the half ounce jar to \$27.50 for the 11 ounce jar. The container is an exquisite porcelain apothecary jar tinted in a delicate pink and crested in gold.

Business Outlook Analyzed by Dr. Heinz E. Luedicke for D. C. A. T.

A well considered, common sense analysis of the business outlook for 1958 was given by Dr. Heinz E. Luedicke, editor of the Journal of Commerce to a packed audience of members of the D. C. A. T. Section of the New York Board of Trade in the Waldorf Astoria hotel January 30. He frankly admitted that we are in a recession but logically pointed out, in an address spiced with good humor, that conditions are likely to be much better by the end of the year.

British S. C. C. Holds Fourth Scientific Meeting

The fourth Scientific Meeting of the Session was held at the Royal Society of Arts, John Adam Street, W.C.2., on Friday, 3rd January, 1958. The President, Mr. J. Pickthall, F.R.I.C., introduced the lecturer Mr. D. F. Anstead, B.Sc., A.R.I.C., who spoke on the subject "Pigments, Lakes and Dyestuffs in Cosmetics."

The lecturer made it clear that, for purposes of convenience, he would concentrate upon organic dyestuffs and pigments, the different types of which he defined and explained. The properties of the pigments are dependent upon the method of manufacture and some interesting examples were given in illustration. The special properties such as light-fastness, tendency to "bleed" into oil or water and so on were discussed with reference to the products soap, bath crystals, face powders, lipsticks, foundation lotions and creams, cake make-up, nail varnish, and preparations in oil, water or alcohol.

Not only does the method of manufacture modify the properties of the pigments, but other components present in the cosmetic product may play a part. Mere dilution may affect the light fastness of a colour; perfume may affect not only light fastness, but also tendency to "bleeding" and shade.

Several examples were given of the advantages which follow close co-operation between the colour manufacturer and the cosmetician. The difficulties encountered in colouring foundation creams and lotions and cake make-up can be eliminated when the pigment manufacturer makes up the colour in paste form in one of the basic media of the cosmetic product. Again the processing together of coloured and white pigments for nail varnishes is best carried out at the stage of manufacture of the pigment, for, only in this way can streaky white separation in the bottle be avoided.

The softness of texture and ease of dispersion of a pigment can change through alteration in particle size and formation of aggregates during filtering and subsequent drying. Aggregates formed at this stage are not inevitably broken down during any subsequent grinding. A recent promising development in pigment manufacture is to provide the particles with a hydrophilic film for dispersion in water and with a hydrophobic film for dispersion in oil, aggregation being prevented.

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AEROSCRIPTS



Jack Pickthall*

On October 26th, at Frankfurt/Main, a meeting took place which is, without doubt, of great interest to all people connected with the Aerosol Industry. The meeting was organised by the Editor of "Parfumerie und Kosmetik" and was attended by forty people representing many sections of the Aerosol Industry. The sections of the industry covered, included Contract Loaders and Aerosol Manufacturers, makers of Machinery, Perfumery firms, Consultants, Valve and Container makers etc. The main purpose was to consider whether there were sufficient common interests to justify the creation of a National or International organisation for the development and promotion of Aerosols.

The opening address was by Mr. Hentzel who elaborated the ideas mentioned above. He emphasised the desirability of a control development of products, a general publicity campaign and the development of Public Relations. The whole idea was condensed into three points by Mr. Hans of Pegasus International Corporation (representing Risdon Valves in Europe and the U.S.A.). The three points were:—

1. Are the aerosol potentialities in Europe sufficient to justify the promotion by a concerted effort?
2. Are there a sufficient number of common interests among the various parties concerned to justify such a concerted promotion action?
3. How would it be possible to share out the cost of such an action amongst the interested parties?

These three points were discussed at great length, although time was inevitably spent on side issues. For instance, there was a suggestion that an alternate word to "Aerosol" should be found as this presents some difficulties in pronunciation in Germany. Eventually, it turned out that there was no readily available alternate word.

It seemed to be generally agreed that the first question was answered in the affirmative. The second question included a discussion on the desirability of creating some type of identification mark which would guarantee the quality of the aerosol in question. The idea was that this mark be applied to the container and could conceivably be granted by a Standards Bureau. On the whole, the

larger manufacturers were opposed to these suggestions. No clear cut decision was arrived at. Question three did not receive a very warm reception and little discussion was forthcoming. Instead, it was decided to appoint from those present, a working committee of eleven members that would meet at an early date. This temporary committee would prepare a meeting of a larger group of parties interested in aerosols and which would, perhaps, represent a larger cross section of the industry. It was agreed that this working committee would include one member of each of the following industries:—

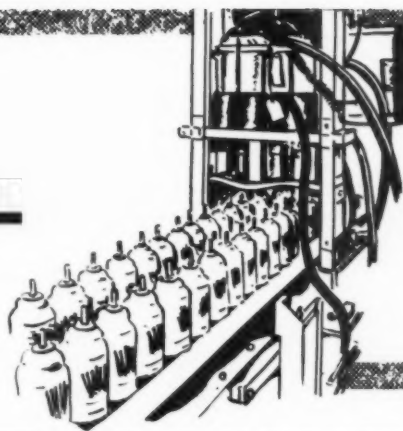
1. Tinplate.
2. Aluminium.
3. Glass.
4. Valves.
5. Propellants.
6. Perfumery.
7. Pharmaceutical.
8. Cosmetic.
9. Insecticide.
10. Contract Loaders.
11. Filling plant.

Perfumery firms were particularly well represented, no less than five from this industry being present. Also present at the meeting were the Board of the International Aerosol Association which was launched in Switzerland on the 18th September, 1957. This Board consists of Mr. Gerald M. Mayer, Dr. Honisch and Mr. Hirschburger. The objects of the International Aerosol Association run more or less parallel with those discussed at the present meeting. The objects of the I.A.A. were explained to the meeting by Mr. Mayer who visualized the I.A.A. as an overall body for national organisations. It is pretty fair to say that this idea was not greatly favoured by a certain section of the meeting.

Late in October, I attended a meeting of the recently formed Pressure Packaging Discussion Group which is run by the Institute of Packaging. The meeting was attended by people from all the industries which have an interest in aerosols, including Fillers, Cosmetic Houses, Perfumery Houses, etc. The topic for the evening was "Corrosion Problems in Aerosols." A short talk was given by Mr. P. P. Hopf of Messrs. A. Boake, Roberts Company Limited. He used as an example, one of his Company's epoxidised oils containing four epoxy groups

*Chief Chemist, Polak & Schwarz, England, Ltd.

Guide to AEROSOL PACKERS



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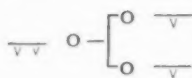
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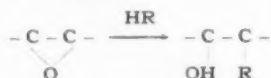
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as follows:—



The classic reaction of the epoxy group is acid acceptance:—

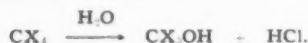


According to Mr. Hopf, this is the one instance known of a neutral body reacting rapidly with acid to form another neutral non-ionic body. It has the reactivity of a secondary alcohol and must not be confused with epoxy resins which react as primary alcohols. These epoxidised oils are extremely stable to alkali as the glycerol ester group will be attacked long before the epoxy group. The acceptance of even weak acids or ions is fairly rapid and catalysed by chlorides and salts. Another property associated with this material is the power of chelation of metallic ions. The material is insoluble in gasoline, hydrocarbons and water, but soluble in the more usual solvents, alcohols and glycols. It is completely heat stable and considered to be edible, non-toxic and free from all dermatitic hazard.

The following points are taken from Mr. Hopf's talk:—

The Aerosol System.

Action of the propellant.



The halogenated propellant is sensitive to water, particularly in the presence of traces of aluminium or iron. The reaction is autocatalytic, i.e. once set-up the hydrochloric acid formed will induce further break down. It therefore needs stabilisation, i.e. something to mop up the hydrochloric acid as fast as it is formed, which is the function of the epoxidised oil. The hydrochloric acid can have the following effect;

- (a) If the container is iron it can cause rusting. If it is aluminium there is a risk of explosion or rapid deterioration.

In the case of aluminium, the chlorinated solvent alone can react violently, as is well known and pitting can be caused by salts as well as acids. The acid acceptor, therefore, must be non-alkaline and the epoxidised oil is the only material we know which will fulfill these conditions.

By way of parallel, the epoxidised oil is used widely in surface coatings and protective greases for similar purposes.

- (b) The hydrochloric acid can have an effect on the content of the aerosol. This can become acid or polymerise, or in the case of esters and glycerides, hydrolyse.

Note: Where the content of the aerosol is itself unstable due to acid split off, e.g. D.D.T., the epoxidised oil

can be used to stabilise such substances.

Examples.

A classic example of a formulation which will both deteriorate and cause corrosion in tinplate containers is a 7% menthyl salicylate sun-tan lotion which contains glycols and alcohols. The epoxidised oil gives complete protection in this instance. Orange oil tends to resinify in the presence of traces of acid, the epoxidised oil has been found successful there.

Hydroxycitronellal is an extremely good solvent for a number of lacquers and the addition of the epoxidised oil has not improved lacquer peel-off but has prevented deterioration of the content and corrosion.

In each case 2-5% epoxidised oil on the propellant was used and rapid deterioration was noted in the controls under the conditions of storage.

Examples from other laboratories.

These include an insect repellent spray using Freon 11/12 and D.M.P. where both rusting and hydrolysis of the phthalate were prevented. A fire extinguisher based on mono-chloromonobromo methane which, due to low temperature packing, may contain traces of moisture, was stabilised by the addition of the epoxidised oil.

A typical example where the epoxidised oil is ineffective is an aqueous xylol saturated alcohol solution using a mixture of propane and butane as a propellant. The epoxidised oil is soluble in neither of these phases.

The talk resulted in an hour of general discussion. The big advantage of this sort of meeting is that anyone can chip in with little experiences of their own, which in turn can be either amplified or criticised or even explained. Each individual worker naturally tends to specialize in a rather narrow field and it is a great advantage to be able to talk over problems with people who are experts in other directions. This is the very thing that has been needed in our industry for some time.

At the end of November, there will be another discussion, the topic being Cosmetic Aerosols. Two speakers will attack this subject from rather different angles.

Trade Literature

Dragoco Holmzinden has published data sheets on Iso-Bergamate "Dragoco", Lactoscatone "Dragoco", and Drago-Jasimia, presenting chemical and physical data along with suggested uses.

Wilkins Instrument & Research, Inc. of California has published a quarterly, *The Aerograph Research Notes*, designed to help with analytical problems. Each issue will discuss two or three problems arising

in Gas Chromatography. There is also a column devoted to special problems, plus information on the latest Aerograph accessories and improvements.

Arthur S. LaPine & Co. has published a bulletin giving data on uses, limits of operation, and installation of a new pipe heater with electrical resistance heating wires sealed in water-proof polyvinyl chloride.

A new eight-page sheet describing the properties and uses of "Union Carbide" Silicone compounds of the 520 series is now available. Copies may be obtained by writing to Silicones Division, Union Carbide Corp.

A. Boake, Roberts Co. Ltd., recently published a catalogue in Spanish, intended for circulation in South America.

A comprehensive technical manual on the properties and uses of Gelvatol, polyvinyl alcohol, has been published by Shawinigan Resins Corp. The manual contains full information on the physical properties of the various Gelvatol grades. Also included is a section covering selected chemical reactions of polyvinyl alcohol.

Volume II of the Plurion Grid has been published by Wyandotte Chemicals.

Life magazine announces the publication of a booklet entitled *A New Background for Marketing Decisions*, which is designed to acquaint you with Life's new Study of Consumer Expenditures, describing how the survey was conducted and reporting on the first Marketing Round Table, an all-day discussion by thirty-five distinguished leaders from American business, government and universities. The first formal report from the Life Study will soon be available in book form.

Sodium Dispersions, a new and completely revised edition, has been published by U.S. Industrial Chemicals Co. The 42-page booklet is 50% larger than the earlier edition. It is a well-illustrated exposition of the technology of preparing and using sodium dispersions. Key points covered are: Reactions that can utilize sodium dispersions; Design and operating instructions for laboratory, pilot, and plant scale equipment; Complete procedures for several typical reactions involving sodium dispersions; Equipment layout for continuous preparation of dispersions.

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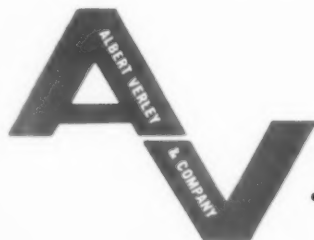
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TRADE TALK

Yardley Announces Sales Contest Winners

For the third consecutive year, William Hendry is named first winner of the Yardley of London annual sales contest. Mr. Hendry, assigned to the northern N. J. territory, again receives the President's Cup and cash award for record sales performance during 1957. Second place winner and recipient of a cash award is Eric Williams, Texas sales representative. Third and fourth runners-up are Al Robertson and Tom Devaney. Their prize is a trip to England to represent the American firm at the London company's annual sales conference in March.

Francois and Antoine de Laire of Issy, France Now in U. S.



Antoine de Laire

François de Laire, head of Fabriques de Laire, Issy and Calais, France, arrived in the United States by air January 25 for his annual trip to this country. He is accompanied by his son Antoine de Laire, and they will stay in New York for about one month and travel to the Middle West. Afterwards, Antoine de Laire will fly to Mexico before going back to France at the beginning of March.

François de Laire and Antoine have brought with them several of the latest creations of the perfumery laboratories of Fabriques de Laire which have met with great success among French perfumers and which are likely to prove interesting to American perfumers.

This is Antoine's second trip to the United States. He was here previously in 1955 for six months with De Laire, Inc. studying the American perfumery and soap industry and familiarizing himself with the American market. While here Antoine made many friends whom he is looking forward to seeing again.

Private Treble Damage Suits Outlawed by U. S. Supreme Court

The U. S. Supreme Court has ruled that a company injured by an allegedly illegal price discrimination under the Robinson-Patman Act may not bring a private treble damage suit against the offending competitor. The question was posed in two cases before the court.

Adolph Dingfelder Joins Reynaud Ltd. as Vice President



Adolph Dingfelder

Adolph Dingfelder has been appointed vice president in charge of sales for Reynaud, Ltd., 355 W. 52nd St., New York, N. Y. it has been announced by George J. Tombak president of the company. His sales activities will cover domestic as well as foreign markets. Renaud, Ltd. which manufactures aromatic chemicals, perfume specialties and industrial deodorants and deals in essential oils has no connection with any other company of similar name.

U. S. World Trade Fair in Coliseum New York May 7-17

The United States World Trade Fair which will be held in the Coliseum, New York City May 7-17 announces that as of February 1 there were 31 participating countries which will exhibit.

Flavor Assn. Drafts Analytical Methods for Vanilla Extract

The Flavoring Extract Manufacturers' Assn. in cooperation with the Boyce Thompson Institute for Plant Research, Inc., has forwarded to the Food and Drug Administration a tentative draft of the first in a series of analytical methods dealing with vanilla extract. This method is a chromatographic procedure for screening vanilla extract for detection of adulterants or substandard manufacturing procedures.

The draft method will be examined and applied in a collaborative study during the coming year, in which it is expected that a number of Flavoring Extract Manufacturer's laboratories and the Food and Drug Administration will participate.

Dr. Albert Shansky and Sheldon Levinson establish Sybil Ives Ltd.

Dr. Albert Shansky formerly director of research for Blnat Inc. and Sheldon Levinson formerly vice president of Clairrol, Inc. have organized Sybil Ives Ltd. at 127 S. Terrace Ave., Mt. Vernon, N.Y. to manufacture toilet preparations for the beauty industry.

F. M. Balmore Speaker At The Adaciom Club

F. M. Balmore, special assistant to the president, Mallinckrodt Chemical Works, spoke on "Peacetime Application of Atomic Energy" at a recent meeting of The Adaciom Club, St. Louis, Missouri. Mr. Balmore told how medicine, agriculture and industry are profiting from the use of radio-active materials. An ever increasing number of new uses are being found in these fields. The huge research investment in the atomic field will be paid back many times over in better health, increased agriculture productivity and increased industrial efficiency.

Essential Oils Imported from Poland

Natural essential oils such as Pine Needle Oil, Coreander Oil, Caraway Oil, and many others are being produced in Poland and imported by the Kolon Trading Co., Inc., exclusive sales representative for CIECH, Ltd., Warsaw, Poland.

Franklin Cooper Establishes Embassy Laboratories

Franklin H. Cooper formerly with the Connecticut Chemical Research Corp. and Standard Aromatics Inc. has organized Embassy Laboratories at 125 Fifth Ave., New York, N.Y. to manufacture private label cosmetics and related items and to assist firms launching new products in finding the component parts such as packaging, labeling and other designing elements necessary in the cosmetic industry. Drop shipping and billing facilities are to be available when desired.

Vimark Laboratories Takes Over Endorsed Products Inc.

The cosmetic manufacturing plant founded by the late Dr. Joseph L. Stummer and later operated as Endorsed Products Inc. at 39 East 20th St., New York 3, N.Y., has been taken over by Vimark Laboratories. Under the technical direction of Paul Kracauer, Ph.D., the plant and research laboratory will provide consultant services, research and development of new products and contract manufacturing of cosmetics, drugs and consumer chemical products. Herbert Lerner is general manager.

Avon Products Planning Office and Packaging Branch in Rye, N.Y.

Avon Products Inc. is planning to erect a two and a half million dollar building on the border of Rye, N.Y. to house offices and packaging operations.

Correction

In our December issue, page 35, it was stated that the Glidden Co. is producing hydrated myrcene at a very low price. We would like to rectify this since it is well known that the Glidden Co.'s interest in aromatics is the production of relatively pure chemicals of excellent organoleptic quality.

Hydronal

PURE (+) HYDROXYCITRONELLAL

HYDRONAL is not a blended speciality base, but hydroxycitronellal pure and simple:

PURE because all physical imperfections have been removed

by the most modern scientific means.

SIMPLE because HYDRONAL strikes only one note: the intrinsic odour

of hydroxycitronellal—true, clear, and wholly delightful.

On first appraisal, the odour of HYDRONAL may seem a little subdued.

This is solely due to the absence of discordant fatty or citronellal-like

by-odours which have hitherto distorted the odours of commercial and

even speciality grades. Once matured in a perfume compound HYDRONAL lacks

nothing in strength and stability, and special packing under nitrogen

ensures that it reaches the consumer in the same immaculate

condition in which it leaves the plant.

To appreciate the true character of hydroxycitronellal and all

its possibilities as a perfume component, a trial

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Packaging and Promotion

1. HELENA RUBINSTEIN



1.

Printing techniques simulate expensive metallic effects in the Helena Rubinstein Purscent, a new solid perfume. Donrico, Inc. is credited with the design and production of the medallion which imparts a metal-like appearance to the Purscent container. The base is diecut foil, laminated with transparent acetate and embossed to achieve dimension. Printing inks complete the illusion of semi-precious stone settings of amethysts, rubies, etc. A mother-of-pearl finish container holds the Purscent and is contained in a folding carton with die cut center to reveal the medallion.

2. HOUBIGANT



2.

Houbigant's new Hermetique Atomizer is being marketed in a setup box featuring the delicate approach suggested by the perfume, Chantilly. Designed and produced by Donrico, Inc., the one-color pink wrapper is gold leaf stamped and laminated with cellophane to produce a high gloss finish. To achieve the lace effect, rose-chantilly lace was photographed and reproduced, making an effective white overlay pattern on a strong pink background. Donrico also designed the Hermetique Atomizer bottle. This black, plastic-coated aerosol container resembles a beehive because of its ribbed effect. This container reportedly holds 1000 measured sprays of perfume.

3. TANGEE



3.

Tangee is now appearing throughout the country in new packages and display racks. Designed by Paul Smith of Calkins & Holden, Inc., the new Tangee packages incorporate eye-appeal with practicality. In black and gold, the packages stand out in bold relief against their four-color display posters that feature a sleeping beauty wearing the new Tangee makeup colors. The Tangee lipsticks are packaged in black and gold metal cases. The Miracle Makeup Foundation is in a black bottle with gold lettering and gold cap. The Fluid Beauty emollient is in a black plastic squeeze bottle with gold lettering and gold cap.

4. KRYLON

Three new mist sprays of Lady Lavender, Pine and Cedar scents in push-button aerosol containers are now being marketed nationally for the producers, Robinco, Inc. by Krylon,



4.

Inc. The new sprays are packed individually in units of 12, in an eye-catching point-of-sale carton. Each of the sprays in the 6 oz. size, is being retailed at 98¢.

5. SCHIAPARELLI

Madame Elsa Schiaparelli has created six new colors for her newest lipstick. The Schiaparelli "La Marquesa" lipstick is encased in a handsome gold column accented with an ebony black base and matching cap. According to the manufacturer, the new lipstick is made from a new formula, perfected for lip safety, and durability of hue.

6. TUSSY

Tussy's Roto-Magic rollon deodorant now comes in a new red, white and black folding carton designed for outstanding display, easy identification and "stackability." Measuring 2 3/4" x 4" x 1 1/2", the new carton is printed in three colors with a stylized illustration of Roto-Magic's plastic container on the front panel, side illustrations of a "strobe" shot of Roto-Magic in action and of the *Life* ad illustration, and copy on a red panel on the back.

7. HELEN NEUSHAEFER

Latest innovation in Lipstick Brushes is Helen Neushaefer's feather-edged brush with bristles "feathered" to conform to the contour on the lips. Both the #126 Lipstick Brush card and the #360 easel display card containing 12 on display and 12 in refill reservoir in rear have been re-packaged. The Lipstick Brush retails for 29¢.

8. ALMAY COSMETICS

A new beauty aid by Almay Cosmetics now available in a self-merchandising display unit is an eyebrow pencil in a fully automatic gold metal case with built in sharpener. The new eyebrow pencil is reported to be both waterproof and nonsmearing, with all known skin irritants screened out. Known as Deal #1440, Almay's pre-packed display contains one dozen eyebrow pencils and eight refill capsules giving the dealer a complete assortment of colors.



5.

6.



7.



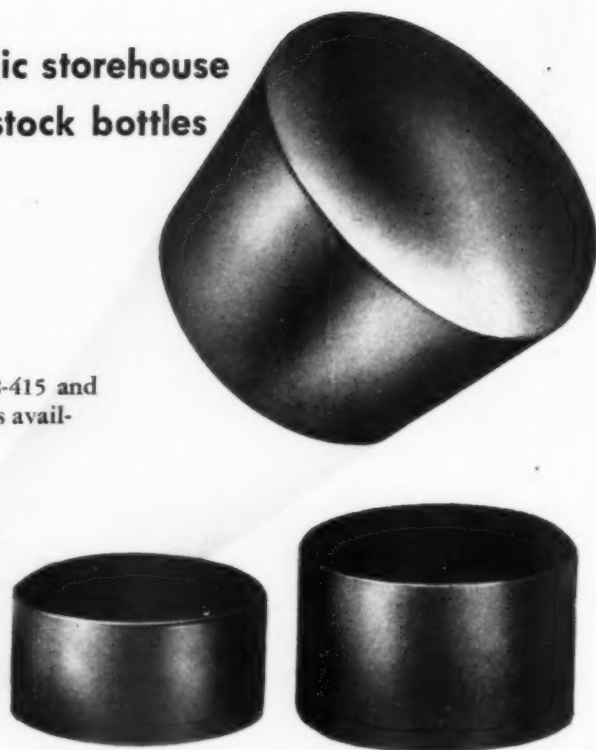
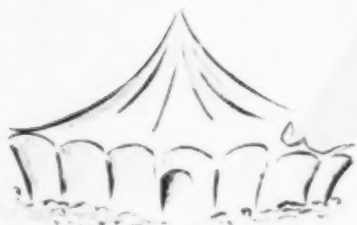
8.

from **RICHFORD**'s magic storehouse
of closures and caps for all stock bottles
or your own private molds

the **BIG** top

Straight side flush fitting caps, size #18-415 and #20-415 to fit 2 oz. and 4 oz. stock bottles available from leading glass manufacturers.

In black phenolic, colored urea (your choice), or in the well-known Goldcôte® and Silvacôte® vacuum metalized finishes.



and sparkling new futuras

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News

and Events

Coneybear Heads Colgate New Product Development



Savery Coneybear has been appointed director of new products development for the Colgate-Palmolive Co. He was formerly a director of research. He will now be responsible for receiving and evaluating new product ideas from within and outside the company and for encouraging individual inventors and companies to submit products, processes and developments to the company for commercial development. He is located in the company's headquarters, 300 Park Ave., New York, N. Y. Mr. Coneybear is president-elect of the Society of Cosmetic Chemists.

Essential Oil Credit Bureau Hears Pierre Coutin

Pierre Coutin was the speaker at the January meeting of the Essential Oil Assn. Credit Bureau.

Wirz Tube Catalog Wins Gold Medal for Excellence

The new fold-up metal collapsible tube handbook of A. H. Wirz Inc., Chester, Pa. won the first gold medal at the Graphic Arts Exhibit in Philadelphia January 13. The catalog prepared by the R. G. E. Ullman Organization, includes useful data on the design, manufacturing and merchandising of products in collapsible tubes. Important specification factors are listed and helpful selector charts serve as a guide in determining the compatibility of various products with various tube metals. The advantages of single use tubes, ready-peel strippable lithography. Appli-tubes and other special Wirz techniques are explained in detail.

New Officers Elected by Vanilla Bean Association

The Vanilla Bean Assn. has elected the following officers for 1958: President, W. H. Triest, Zink & Triest, Philadelphia; Vice President, E. Vina, Thurston & Braidich, New York; Treasurer, J. Manheimer, New York.

Companies Introducing Tooth Paste in Aerosol Containers

Colgate Palmolive Co. has introduced Colgate's Dental Cream with Gardol in aerosol dispensers. The Rexall Drug Co. has also introduced a tooth paste in an aerosol dispenser. Procter & Gamble Co. is reported to have an aerosol dispensed tooth paste on stream.

Verona-Pharma Chemical Co. Now a Part of Bayer A. G.

The Verona-Pharma Chemical Corp., Newark, N. J. is now a part of Farbenfabriken Bayer A. G. of West Germany as the latter has acquired a substantial interest in the company. No changes in the management are planned.

Dr. Albert Holland to Lecture on Cosmetics in Chicago



Dr. Albert H. Holland Jr., medical director of the Food and Drug Administration will speak on "Cosmetology, Cosmetics and Common Sense" at the Feb. 27 meeting of the Chicago Chapter of the Society of Cosmetic Chemists. He will stress the importance of continuing basic research on the physiology and metabolism of the skin.

WIRZ HANDBOOK WINS AWARD



A. H. Wirz fold-up metal tube handbook gets "Best of the Year" Award at Graphic Arts dinner sponsored by Printing Industries of Philadelphia. L. to R. Henry Cox, A. H. Wirz; Cy Sailer, Independence Press; John Dingee, R. G. E. Ullman Organization.

FRAZIER V. SINCLAIR CIBS SPEAKER



Frazier V. Sinclair, Publisher, "Beauty Fashion" and "Drug & Cosmetic Industry," spoke at the January Meeting of the Cosmetic Industry Buyers' and Suppliers' Assn. (CIBS), at Toots Shar's. His topic—"The Cosmetic Industry—Present and Future." Shown talking with Mr. Sinclair are (l to r) Paul Alexander, "Drug & Cosmetic Industry"; Shockley C. Gamage, Magnus, Mabey & Reynard, Inc., CIBS' Publicity Chairman; William L. Jaeger, Park and Tilford, CIBS' President; Mr. Sinclair; Jack Palmer, Peerless Tube Co.

CIBS PRESIDENT, NEW OFFICERS



William L. Jaeger, Park & Tilford, has been elected president of the Cosmetic Industry Buyers' & Suppliers' Assn. (CIBS) of New York. Shown here are the new officers of the Association, elected at the CIBS' regular monthly meeting at Toots Shar's restaurant. Seated, left to right: John Duncan, 1st vice-president; William L. Jaeger; Jay Stephens, recording secretary. Standing, left to right: J. William Voit, director; James E. Beyer, director; Frank Pond, Constitution Committee Chairman; George A. Kaempkes, director. Also elected, but not in the picture, Eugene C. Roberts, treasurer; Lamson Scovill, 2nd vice-president.

Ingram Shaving Cream Back in the Market

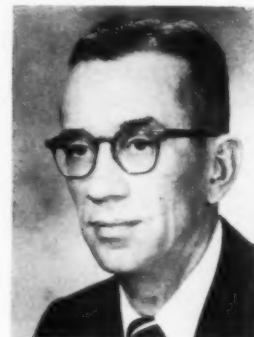
Ingram shaving cream which was the No. 3 seller in the field 20 years ago when it was made and sold by the Bristol-Myers Co. which abandoned the name in 1956 will be back on the market. The Ingram Menthol Co. has been organized by James Field, formerly with the J. B. Williams Co. and the Lambert Pharmaceutical Co. and has acquired the Ingram name and good will. The cream which used to be sold in jars and tubes will now be sold only in tubes. An aerosol is planned also. An advertising campaign will break in the Spring. Already the company has distribution in 100 markets. Ingram shaving cream was originally made by the Frederick F. Ingram Co. Detroit which had manu-

factured cosmetics since 1885. In 1929 the Bristol-Myers Co. purchased the shaving cream formula, name and good will and is said to have spent about four million dollars in advertising it from 1929 to 1947. Bristol-Myers abandoned the product two years ago.

Pharmaceuticals Inc. After New Business Acquisitions

Pharmaceuticals, Inc. and the J. B. Williams Co. have elected Franklin Bruck, chairman of the Parkson Advertising Co., a vice president in charge of new business acquisitions. He will handle the purchase of drug and related industry companies and will supervise the development of new consumer products.

Horrobin Assigned to Firmenich Home Office



Robert E. Horrobin

Robert E. Horrobin has been assigned to the technical sales staff of the home office in New York City of Firmenich, Inc. He formerly was assistant manager of the Firmenich Chicago office.

van Ameringen-Haebler Employees to Benefit by New Security Plan

Charles P. Walker, president of van Ameringen-Haebler Inc. has announced a new and improved employees security program to be financed entirely by the company. It provides a number of additions to the older plan including increased retirement income payments for life starting at age 65 as well as early retirement provisions which can be exercised by the employee. It also offers improved life insurance with extra payments for accidental death as well as weekly disability benefits. Hospitalization and surgical plan coverages also have been improved and a major medical contract is included at no cost to the individual.

Robert E. Felton to Direct Felton Co.'s Promotions



Robert E. Felton

Robert E. Felton has assumed direction of all company promotional activities of the Felton Chemical Co. Mr. Felton has been associated with Felton Chemical Co. for 32 years, having diversified experience in all phases of company operations. For the past six years his activities have been centered mainly in the metropolitan area, working with research and production specialists.

Ernest Shiftan introduced as
"Mr. Nose, U. S. A." on Radio



Ernest Shiftan vice president and chief perfumer of van Ameringen-Haebler Inc. and former president of the American Society of Perfumers was introduced on a recent radio broadcast as "Mr. Nose, U. S. A." In the interview Mr. Shiftan stated that a good perfumer has to have an odor memory for nearly 3,000 aromatic chemicals. In addition he must have the imagination and skill to create a blend of as many as 300 of these materials to make a finished product that will have lasting properties, strength, evenness, beauty and a definite theme.

Nestle-LeMur Co. Acquires Ethical Drug Concern

Nestle-LeMur Co., cosmetic manufacturer has purchased the Caroll Dunham Smith Pharmacal Co., manufacturer of prescription specialties.

Mrs. Catherine Mennen's Service to Expectant Mothers

In recognition of the useful work that has been done by Mrs. Catherine Mennen, wife of William G. Mennen Jr., executive vice president of the Mennen Co., Morristown, N. Y. a silver bowl was presented to her at a luncheon in her honor January 15 in the Savoy Plaza hotel New York. The presentation was made by Willard Crane, president of Shaw Publications, publishers of My Baby magazine, which sponsored the affair.

Mrs. Mennen's work began in February 1957 when she was hostess to almost 4,000 expectant mothers at the Hotel Astor, New York. Since then she has taken her Lady-in-Waiting educational program to thousands of expectant mothers in many cities. This year Mrs. Mennen is continuing her work in St. Louis, Houston, New Orleans, Miami, Los Angeles, San Francisco, Seattle, Detroit and other cities.

NEW YORK S.C.C. OFFICERS AND CHAIRMEN



Officers and Committee Chairmen for 1958: (left to right, seated) Marti Zeitlin, Secretary; Harry Isacoff, Chairman; Theodore Ostrowski, Chairman-elect; Herbert Edelstein, Education; Martin Katz, By-laws; Maria Wiener, Public Relations; (standing) Robert Warburg, House; Irving Colbert, Membership; Vincent DeFao, Treasurer; George Kachagian, Entertainment; John Longfellow, Program; Saul Bell, Publicity; Nicholas Accousti, Hospitality. Missing from photograph is Arthur Cohane, Interprofessional Relations.

Packaging Show Scheduled for New York May 26-28

A three day packaging show in the New York Coliseum May 26-28 has been planned by the American Management Assn. The National Packaging Conference will be held concurrently with the National Packaging Exposition at the Hotel Statler, New York.

Procter & Gamble Co. Pushes New No Lotion Permanent

Pace, the new home permanent which does not require a waving lotion launched by Procter & Gamble Co. re-

cently is being pushed by an extensive advertising campaign. Pace is said to wave hair by means of end papers containing the waving ingredients. The user winds her hair and then squeezes water on the curls from a plastic bottle included in the package. A separate neutralizer starts the waving action at a specified time. It is available in three strengths to meet the needs of those with easy to wave hair, difficult to wave hair and normal hair. The Pace kit includes 60 Perma-Papers as the end papers are known. As the waving is measured by the end papers guesswork and errors, the company points out, are eliminated. The kit sells for \$2.

CATHERINE MENNEN HONORED



Mrs. Mennen receiving award from William Crane. With her is Dr. Bela Schick, pediatrician, who discovered the scratch on the arm Shick test which abolished diphtheria as a baby killer.

Croda Italiana Lanolin In Full Production



In 1955, Croda Limited announced the formation of the Croda Italiana company as a joint operation in conjunction with Gaetano Marzotto & Figli, Italian

textile concern. Production commenced in 1956 and subsequent operations have justified the erection in Italy of the world's most modern lanolin plant.

PIZZOLATO AND SECLOW NAMED BRAND MANAGERS



Victor A. Pizzolato

Victor A. Pizzolato and Richard S. Seclow have been promoted to brand managers in the Lehn & Fink Division of Lehn & Fink Products Corp. Both men previously were product managers. Mr. Pizzolato will assume full charge of ad-



Richard S. Seclow

vertising for Hinds Honey & Almond Fragrance Cream and Etiquet deodorants. Mr. Seclow now adds advertising of Lysol Brand Disinfectant to his responsibilities for that product, including merchandising and sales promotion.



Bissell Carpet Sweeper Co. Introduces Two Rug Cleaners

The Bissell Carpet Sweeper Co., Grand Rapids, Mich. has launched two new rug cleaners, Shampoos Master and a liquid rug cleanser. A heavy advertising program is to be launched April 5.

D&O Develops New Perfume Material

Dodge & Olcott, Inc. has introduced Ambreine Solid, a fused blend of natural and synthetic fixatives and sweeteners. It appears physically as irregularly shaped lumps which melt or dissolve with gentle heat. According to the manufacturer, it is clearly soluble in Benzyl Alcohol, Benzyl Benzoate and mixtures of Essential Oils and Aromatic Chemicals.



Wake-Up Make-Up Kit

Tiny polyethylene tubes are being used for the first time to package special photographic make-up cosmetics in the Wake-Up Make-Up Kit. The Bracon tubes which hold about 1/8 ounce of cleansing cream and base make-up, are made by the Bradley Container Corp.

Tinkerbell Hosts Two Holiday Parties

Tinkerbell waved her magic wand, brought good cheer and distributed gifts at two holiday parties for underprivileged children in New York. At St. Patrick's Center on Mulberry St., she played hostess to 500 boys and girls who are members of the Police Athletic League. Another party at which Tinkerbell entertained was staged for pediatric patients at the Institute for Physical Medicine and Rehabilitation. The parties were sponsored by Tinkerbell Toiletries of Englewood, N. J. In the photograph, Tinkerbell poses with Commissioner James B. Nolan, executive director of the Police Athletic League, and Pat Bell, fashion editor of the New York Journal-American.

Shulton Holds Annual Sales Meeting

Shulton, Inc. held its annual sales meeting recently in New York City with branch managers and sales representatives from the United States and Canada in attendance. The meeting was held to review the results of 1957 and outline the firm's extensive sales, promotional and advertising plans for 1958.

Annual awards to the outstanding sales representatives were presented. Al Guard of the Southern Territory received the President's award. Branch Managers' Awards were presented to Messrs. Ted Thomassen, Midwest Territory; Jim Bolland, Southern Territory; Jim Beatty, Eastern Territory; Dick Card, Pacific Territory. "Rookie of the Year" Award was presented to Martin Nash of the Southern Territory.

Joithe, Kastning Appointments Mark Expansion at Reheis

G. Wesley Joithe and Ernst H. Kastning have been appointed treasurer and technical director respectively of the



G. Wesley Joithe



Ernst H. Kastning

Reheis Co., according to an announcement by Daniel H. Reheis, president and founder of the company. The move is part of the company's current expansion program aimed at diversifying the Reheis line by developing new products. John E. Garizio will direct all sales under the program.

Trilazon Now Available

In reply to a question in the January Q & A Section, Trilazon is available from T. J. Lewis, 21 E. 90th St. NYC.

8 Aromatics



Al Guard of the Southern Territory accepts President's Award as outstanding salesman of the year from George L. Schultz.

Fourth Symposium on Perfumery in New York March 20

The fourth annual symposium of the American Society of Perfumers will be held in the Essex House, New York, March 20. The theme will be "The Perfumer Speaks."

The program has been arranged by a special committee composed of Victor DiGiacomo, chairman; Dr. Paul G. I. Lauffer, Everett D. Kilmer, Dr. Oliver L. Marton, Christian F. Wight, August J. Schwinderman and Pierre Bouillette.

The program will be divided into four sections and all of the speakers will be members of the Society.

The sections are: (1) The Perfumer and His Creations: Dr. Walter Lengsfelder, Ernest Shiftan and Everett D.

Kilmer; (2) Cosmetics—the Perfumer's Concern: Dr. Oliver L. Marton and Dr. Paul G. I. Lauffer; (3) Packaging Materials Present Perfuming Problems: Christian F. Wight and Frazer V. Sinclair; and (4) Perfume, the Ever Present Persuader: Pierre L. Bouillette.

The proceedings will commence at 2 p.m. and continue until 5 p.m. and will be followed by cocktails and a buffet supper.

The symposium will be of interest to all responsible for the development and marketing of perfumes, cosmetics, soaps and other fragrant products. It will be an open symposium and guests are welcome. Reservations are \$12.50 per person and should be made early to Edwin D. Morgan Jr., Lever Bros Co., 101 River Road, Edgewater, N. J.

Eastman Chemical Products Announces Appointments



Robert H. Cannon



Decatur B. Campbell, Jr.



John H. Sanders

A reorganization of the field sales activities of the Chemical Division of Eastman Chemical Products, Inc. into three regional areas and the appointment of regional sales managers have been announced by Dr. J. E. Magoffin, vice president, and G. A. Kirton, sales manager. The newly appointed regional sales managers include Robert H. Cannon who will direct the sales of chemicals and dyes in the New England and Middle Atlantic states including the opera-

tion of the company's distribution center at Lodi, N. J. John H. Sanders becomes regional sales manager for those areas served by the division's Cleveland, Cincinnati and Greensboro, N. C. offices plus other areas of the south and southeast. Decatur B. Campbell, Jr. has been appointed regional sales manager of the mid-western area and as such will direct the sales of the division's products in those areas served by the company's Chicago, St. Louis and Houston offices.

SUCCEEDS FATHER



Mitchum E. Warren (right) has been elected president of Golden Peacock, Inc. He succeeds his father, Will T. Warren, Jr. (left), who had served as president of the company 38 years and who was named chairman of the board.

Mitchum E. Warren Elected President of Golden Peacock

Mitchum E. Warren, executive vice president of Golden Peacock, Inc., has been elected president of the Tennessee-

based cosmetic company to succeed his father, Will T. Warren, Jr., who has been named chairman of the board.

The new chairman of the board organized the company in 1941 and had served as president for 38 years. His son, a

graduate of the University of Missouri and a Navy officer during World War II, had been a vice president of the company since 1938.

In assuming the presidency of Golden Peacock, Mr. Warren called attention to the growth of the company.

"Value of sales have quadrupled during the past 10 years," he said, "and we are selling our products in more markets outside the continental United States than ever before. We are shipping our cosmetics to 16 of these markets, including Canada, Cuba, Venezuela, Nicaragua, Guatemala and Hawaii."

Mr. Warren also cited the merger of interests of Golden Peacock during 1957 with Produits Nina, Inc., a cosmetic firm that originated in Paris, France. Produits Nina, which was organized in 1907 and entered this country in 1922, maintains an office in the Rockefeller Center group in New York. The Nina cosmetics are now being manufactured in the Golden Peacock plant in Paris, Tenn., and sales operations are directed from the offices there.

The Nina line (including Princess Cream, Oil-O-zone and Gerania Cream) is currently sold on a franchise basis in leading department stores and specialty shops of this country and Canada.

Among the products that were already manufactured in Paris by Golden Peacock were: Esoterica, Hormonex Beauty Serum, Integrated Therapy, Mitchum's Lotion and Golden Peacock Bleach Creme. A new product, Nature's Secret, is being introduced on the market during 1958.

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V. & S. Morch, 4796 Victoria Ave., Montreal 29, Que.

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SPOTLIGHT

News...

Revlon Inc. has purchased a shoe polish concern to diversify its products outside the area of cosmetics. The Knomark Manufacturing Co. of Brooklyn, makers of Esquire shoe polishes and related shoe products was purchased for cash. It was the first outright acquisition of an outside company by Revlon, under its policy of diversification.

Lanotan, Inc. has been acquired by Plough Inc., Memphis, for a reported price of \$250,000. Lanotan makes Solarcaine, a sun burn antidote, a lip balm and a lotion. The products will continue to be made in Miami, Fla., where the Lanotan plant is located but sales will be handled by Plough Inc. through its established sales organization. This is the seventh acquisition by Plough Inc. in the past two years.

Zonite, a personal antiseptic manufactured by the Dunbar Laboratories of the Chemway Corp. has been attractively repackaged in all three sizes and will be extensively advertised in national magazines. The design of the new package was chosen by women in an extensive consumer test.

The Charles S. Welch Memorial Prize Essay winners will receive their awards this year at a special luncheon meeting May 22 in the Waldorf Astoria hotel, New York. The awards are sponsored by the Toilet Goods Assn.

A new cream type dandruff treatment shampoo, Banish, was launched January 1 by the John H. Breck Co.

Fair trade statutes at the beginning of 1958 are effective in 33 states representing 69.5% of the total population of the United States and 75.9% of the country's consumer buying power according to the American Fair Trade Council, an organization of manufacturers which is striving to protect the fair trade programs of its members through an amendment to the federal Lanham trade mark act. Fair trade statutes are inapplicable to non-signers in 11 states representing 18.9% of the national population and 16.9% of consumer income. There is no effective fair trade law in five states and the District of Columbia which represent 11.6% of the population and 7.2% of consumer buying power.

The teen-age market for cosmetics according to a survey by Scholastic Magazines is larger than most people think and is growing. According to its figures girls from 11 to 18 years of age in junior and senior high schools wear cosmetics daily. Of the senior high school students 98.6% use lipsticks while 95.8%

of those in junior high schools use them. About 85% in both groups use nail polish. Hand lotion, cream and hair spray are also largely used by both groups. Other cosmetics such as powder, eye make-up, rouge and cream and cake make-up are used to a much less extent.

Dr. Herman Goodman, author of numerous books on cosmetics and related sciences left on a round the world tour to far flung places of the British Commonwealth by airplane January 10. He will speak before groups of dermatologists and pharmacists. He is accompanied by Mrs. Goodman. The trip covers the Fiji Islands, New Zealand, Australia, South Africa, Italy and England. He expects to return to the United States February 23.

The illegal promotion benefits charge against Pepsi-Cola by the Federal Trade Commission has been dropped. The complaint charged that Pepsi-Cola gave illegal promotion benefits to favored food and drug chains which were involved in a television time swap. Under the plan stations served as middlemen giving free air time to chains which provided point of sale display space for nationally advertised items. The stations turned over the display space to advertisers who bought time at the regular station rate.

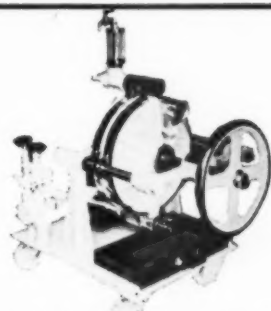
The United States Supreme Court must decide the coal tar color conflict between the fifth and second judicial circuits decisions over the authority of the Secretary of Health, Education and Welfare. The Florida Citrus Exchange won its case against the Food and Drug Administration which enabled Florida and Texas citrus shippers and orange growers to color oranges with coal tar FD & C red No. 32 until March 1959 under state legislation although the certification for this color had been withdrawn by the Food & Drug Administration. The second circuit court held that the secretary had power to fix tolerances for coal tar colors but the court could not require the secretary to do so. On the same record the fifth circuit court held that coloring oranges is safe on the basis that coloring oranges has not proved harmful.

Max Factor & Co. has bought a 13-acre plant site in Hawthorne, Calif. It is in the heart of the newly developed Hollywood Park industrial center in which 35 modern plants for light manufacturing are completed or well under way.

Glycerine is to be manufactured by Shell Chemical Corp. in two new multi-million dollar plants at Norco, La. early this year. Acrolein will also be manufactured in the plants.

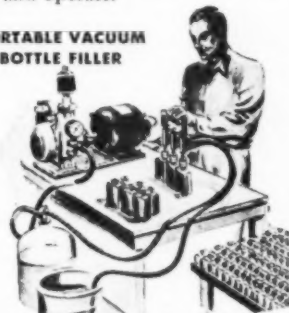


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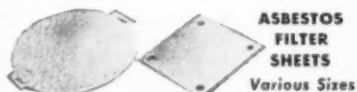


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Howard Zimmer

& Co., Inc., manufacturers of flavors and certified colors, according to an announcement by Arthur D. Vogel, sales manager. Mr. Zimmer is a registered pharmacist with broad experience in the drug industry.

Philip Cortney, president of Coty, Inc. is again serving as chairman of the Cosmetics division in the Legal Aid Society's 1958 drive for funds. Mr. Cortney is chairman of the U. S. Council of the International Chamber of Commerce and of the committee on the international aspects of atomic energy of the National Assn. of Manufacturers.

Robert Mendoza, sales manager of the Antoine Chiris Co. Inc. has been appointed vice president of the company according to an announcement by Frederick E. Shoninger, president of the company. Mr. Mendoza who joined the company in 1946 has devoted his entire business career to the company. He spent years in the manufacturing and research perfumery departments and for the past several years has been sales manager which function he will continue to exercise.

Joseph Baird Magnus, vice president of Magnus, Mabee & Reynard Inc. was elected Commandant with the rank of Colonel at the annual meeting of the Veteran Corps of Artillery, State of New York, constituting the Military Society of the War of 1812. The meeting took place in Fraunces Tavern, New York, January 8. The Corps is the official guard of honor for the governor of New York and in most military parades held in New York City acts as guard of honor for the Grand Marshall. Mr. Magnus' brother, Percy C. Magnus, President of Magnus, Mabee & Reynard Inc. was recently elected a Colonel in the state of Tennessee.

James J. McNamara has been appointed sales promotion manager of the International division of Shulton, Inc. He is a graduate of Yale University and has been associated with Avon Cosmetics S. A. and Johnson & Johnson.

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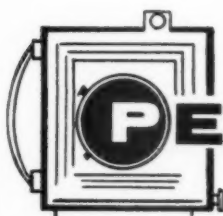
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PERSONALITIES

C. Richard Myers has been assigned to the Technical Sales staff of the Chicago office of Firmenich, Inc., manufacturer of synthetic perfumes and food flavors.



C. Richard Myers

He formerly was with Sterwin Chemicals, Inc. and with the American Meat Institute Foundation.

Eric de Kolb, president of the firm that bears his name, industrial designer who has been associated with Coty, Inc. as consultant art director announces that he will review ideas on packaging and displays, novelties and holiday specialties with representatives of the trade and will be available every Tuesday at Coty Inc., 423 W. 55th St., New York, N.Y.

Earl G. Schneidman has been appointed manager of product publicity and promotion of the Ar-Ex Products Co., Chicago, Ill. according to Julius B. Kahn, president of the company who advises that this is a part of the expanded promotional and educational campaign of the company to meet the growing interest in and use of hypo allergenic cosmetics.

Joseph A. Danilek, president of Mary Chess Inc., has returned from a month's trip through the South and the West Coast on which pleasure and business were combined. Mr. Danilek in company with Mrs. Danilek spent two weeks at The Breakers, Palm Beach, their usual winter vacation spot. Some of the time Mr. Danilek devoted to visiting the many Mary Chess accounts in and around that territory with Miss Frances Balfour, the company's Southern representative. The last two weeks, Mr. Danilek was on the West Coast visiting accounts with Miss Lillian Taylor, West Coast representative. He also worked out plans for the Beverly Hills retail shop for 1958, one of the five shops that Mary Chess has throughout the country.

Louis Mignacca has been appointed a special representative in the New York office of Fries & Fries of Cincinnati, Ohio. He is an alumnus of Brown University and is a Navy veteran of World War II and the Korean war.



Louis Mignacca

Dr. L. B. Parsons, vice president of research and development for the Lever Bros. Co. has been elected a director of the company.

Frank May has been appointed general manager of the Ansbacher-Siegle Corp. a recently acquired division of the Sun



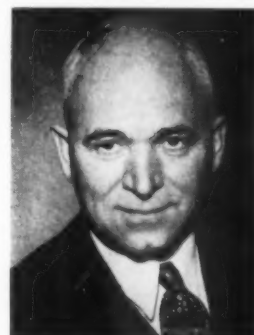
Frank May

Chemical Corp. He succeeds Eric Blackstead recently elected a vice president of Sun Chemical Corp. and general manager of the chemicals group.

J. I. Poses, president of Parfums D'Orsay has been elected a lifetime member of the Metropolitan Museum of Art.

Lazarus A. Kirsch has been elected assistant vice president of Polaks Frutal Works, Inc., Middletown, N. Y. Mr. Kirsch has been associated with the company since 1946.

Lawrence Flett has been chosen to receive the 1958 gold medal of the American Institute of Chemists in recognition of his research achievements. Mr. Flett developed the first commercial synthetic detergent from petroleum and holds 75 patents on detergents, dyes, antiseptics and organic chemicals.



Lawrence Flett

Thomas I. S. Boak has resigned as president and treasurer of the Plume & Atwood Manufacturing Co. He served as president since 1950. Harry L. Shepherd succeeds him as president and S. H. Kimmens as treasurer. Henry L. Shepherd is the new chairman of the board.

J. A. Aeschliman, vice president in charge of chemical research, Hoffman-LaRoche Inc. was the speaker at the January 22 meeting of the American Society of European Chemists and Pharmacists. His subject was "Basic Research in Industry." Following the excellent address a reception in honor of Mr. Aeschliman was given by the association of which Heinrich Waelsch is president.

M. and Mme. Guy Robert and their daughter Dominique, Le Manoir, Parc de la Malmaison, Paris, France, announce the arrival of Francois, December 30, 1957. Mother and baby are doing well.

Robert W. Naething has been made sales manager of the Lehn & Fink division of the Lehn & Fink Products Corp. He will supervise activities in the division which produces Lysol disinfectant and Hinds Honey & Almond fragrance cream and Etiquet deodorants.

William J. Spence has been appointed representative of Chanel, Inc. for the northwest territory covering Colorado, Idaho, Montana, Oregon, Utah, Washington, Wyoming and Alaska.

Peter B. Hopf, product development manager of A. Boake, Roberts Co. Ltd., London, England, will be in the United



Peter B. Hopf

States from April 9 to April 30 to exchange with chemical manufacturers and users technical and commercial information of mutual interest.

Henry N. Calisher has been appointed assistant sales manager of Chanel Inc. succeeding Jerome L. Sullivan who has resigned.

Jack Mohr, the energetic head of Park & Tilford's toiletries and Tintex division captured the audience with his humor and skill as toastmaster at the annual banquet of the Foragers when he served as toastmaster.

Donald Factor, son of Max Factor Jr., president of Max Factor & Co. is to be married March 2 to Miss Lynn Paula



Lynn Paula Harper and Donald Factor

Harper, daughter of Mr. and Mrs. Morton B. Harper of Beverly Hills, Calif. Donald Factor is a graduate of the University of Southern California and is an executive in the merchandising division of Max Factor & Co.

F. Leslie Hart, formerly chief of the U. S. Food and Drug Administration's Boston district has been appointed by Truesdail Laboratories as director of food and drug technology.

Irving Rosen has been elected vice president in charge of sales of the Aceto Chemical Co., Flushing, N. Y.

Ralph C. Zehner has joined Firmenich, Inc. as technical director of the Perfumery Division. He previously was with



Ralph C. Zehner

Lentheric, Inc. for 16 years, where he was vice president in charge of operations and for the last year, under ownership of Helene Curtis Industries, Inc., was also director of Eastern operations. Prior to that he was with the Naugatuck Chemical Division of U. S. Rubber Co. He is a member of the American Chemical Society and the Society of Cosmetic Chemists.

Miss Franya Zibrosky, a perfumer for the Colgate-Palmolive Co., daughter of Mrs. Francis Zibrosky, was married February 8 to Harold L. Kistler Jr. in Trinity Church, New York.

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MARKET REPORT



Bois de Rose, Citronella Oils Drop

Continued drop in costs of oils bois de rose, citronella, and cloveleaf carried some aromatic chemicals to new low price levels including linalool, linalyl acetate, and several other esters, but the periods of freezing weather in Florida were reflected in a rather sharp rise in orange oil prices, particularly in view of the tight supply situation that has existed in Californian oils. Other strong spots in

the market included bergamot, Asiatic styrax gum, and oil lime. Trade was spotty with considerable speculation in trade circles regarding last years sales of a number of consumer products including toiletries and proprietaries. The drop in December retail volume is believed to have cut materially into the years total, although it will be another month before final figures are completed.

PRICE CHANGES

Advances	Current	Previous
Butyl stearate		
Carlots	\$0.27 $\frac{1}{4}$	\$0.25 $\frac{3}{4}$
Less carlots	0.28 $\frac{1}{4}$	0.26 $\frac{3}{4}$
Oleo resin vanilla	24.00	18.00
Vanilla beans		
Bourbon	9.00	8.00
Mexican	9.25	8.25
Oil orange, Floridian	0.75	0.55
Oil rose, Bulgarian, oz.	55.00	40.00
Copra, coast, ton	180.00	165.00
Oil Grapefruit	1.75	1.50
Declines		
Balsam Oregon, gal.	\$4.00	4.75
Gum arabic, amber sorts	0.18 $\frac{3}{4}$	0.19 $\frac{1}{4}$
Linalool	3.40	4.10
Linalyl acetate, 90-92%	3.50	4.25
Glycerin, tanks		
Refined, 90%	0.26 $\frac{3}{4}$	0.27
Refined, 99%	0.27 $\frac{5}{8}$	0.27 $\frac{7}{8}$
Dynamite	0.27 $\frac{1}{2}$	0.27 $\frac{3}{4}$
Synthetic	0.27 $\frac{3}{4}$	0.28
Oil bois de rose	2.40	2.90

(Prices per pound unless otherwise specified)

BUTYL STEARATE HIGHER—

Prices were boosted 1½ cents per pound across the board to reflect increased costs. Material has been moving to the cosmetic industry in good volume. New carlot price in drums is 27¼ cents. Less carlot price was moved up to 28¼ cents per pound.

STYRAX SCARCE AND FIRM—

The situation in Asiatic styrax gum remains highly sensitive due to the smallness of stocks. Recent flurries in the inquiry immediately caused some dealers to withdraw offerings from the market because of the uncertainty regarding replacements. Spot prices were firm at \$1.45 to \$1.50 per pound according to quantity.

REFINED GLYCERIN DECLINES—

Two reductions of ¼ cents per pound each took place in bulk prices for refined glycerin. The first reduction which was

termed a technical readjustment to bring the price spread between prices for natural and synthetic material closer, developed into a competitive situation when makers of the synthetic material reduced quotations by a similar amount. The glycerin market, as a whole, has been influenced by heavy stocks. Consumption has been running below expectations but the major reason behind the competitive situation is the presence of large supplies. In the past refined glycerin prices have fluctuated by ½ to 1 cent per pound.

MINT OIL PRODUCTION—

Total U.S. production of peppermint oil for 1957 is reported to have reached 2,344,000 pounds, slightly above the previous years output and 43 per cent above the average seven-year period, 1949-1955. The data compiled by the Oregon Crop & Livestock Service, Department of Agriculture places the output of spearmint oil at 623,000 pounds

in 1957, six percent below the previous year's output, but five percent above the seven-year average. Exports of peppermint oil for the period September, 1956 to August, 1957 amounted to 870,000 pounds in contrast to 704,000 pounds in the comparable 1955-1956 period. Exports of other mint oils, mostly spearmint amounted to 214,000 pounds in contrast to 231,000 in the previous period, September-August, 1955-1956.

ADDITIONAL STRENGTH IN ORANGE—

The firmness in California orange oil has been accentuated by sharply reduced supplies in Florida. For a time, local dealers had been asking \$1 per pound for Floridian orange following freezing weather in the citrus belt in that State. Later, however, offerings came out at 75 cents per pound which was still 20 cents per pound above the prices at which the oil had been selling in the last half of last year. Distribution of Californian orange oil has been allocated for many months due to a generally tight supply position.

BOIS DE ROSE UNSETTLED—

Cheaper offerings from Peru continued to have an unsettling affect on the market with prices dropping to a low of \$2.90 to \$3 per pound. Trade was moderate with the downward curve in prices serving to make buyers extremely cautious in their operations.

MEXICAN VANILLA CROP SMALLER—

Vanilla beans are strong and advancing. Half of the new crop in Madagascar of about 400 tons has already been sold. Based on reports, the growing districts in Mexico are rapidly being squeezed out by the petroleum industry. New bean crop in Mexico is estimated at 50 to 75 tons in contrast to 125 tons last year. Prices for Bourbon beans have been moved up to \$9 to \$9.75 per pound. New and higher prices for Mexican vanilla beans range from \$9.25 to \$9.75 per pound. Occasional lots of Tahitian beans were quoted at \$7.50.

OIL SANDALWOOD FIRMS—

Oil sandalwood turned firmer for the first time in many months. The reversal in the general trend was attributed to two factors. There were reports of higher bids being made for sandalwood chips at a recent auction. It is also understood that purchases by Russia have materially reduced available supplies at the primary center.

VITAMIN ENTERS FLAVOR FIELD—

The widely used synthetic vitamin C (ascorbic acid) has entered the flavoring field. Makers of the vitamin have been making considerable progress in an educational program designed to show the importance of introducing vitamins in soft drinks. It is understood that good quantities of vitamin C are currently moving out to some of the major manufacturers of beverages.

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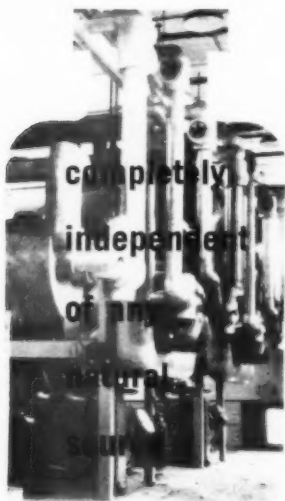
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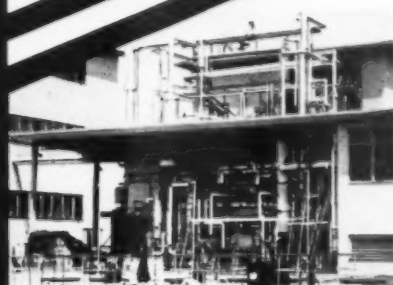
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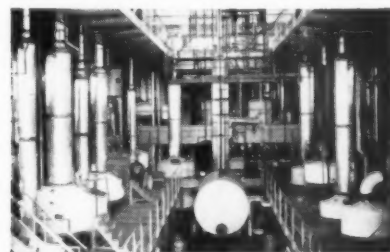
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